CURTIS'S
BOTANICAL MAGAZINE,

COMPRISING THE

Plants of the Royal Gardens of Kew,

AND

OF OTHER BOTANICAL ESTABLISHMENTS IN GREAT BRITAIN,
WITH SUITABLE DESCRIPTIONS;

BY

SIR JOSEPH DALTON HOOKER, M.D., C.B., K.C.S.I.,
F.R.S., F.L.S., ETC.
D.C.L. OXON., LL.D. CANTAB., CORRESPONDENT OF THE INSTITUTE OF FRANCE.

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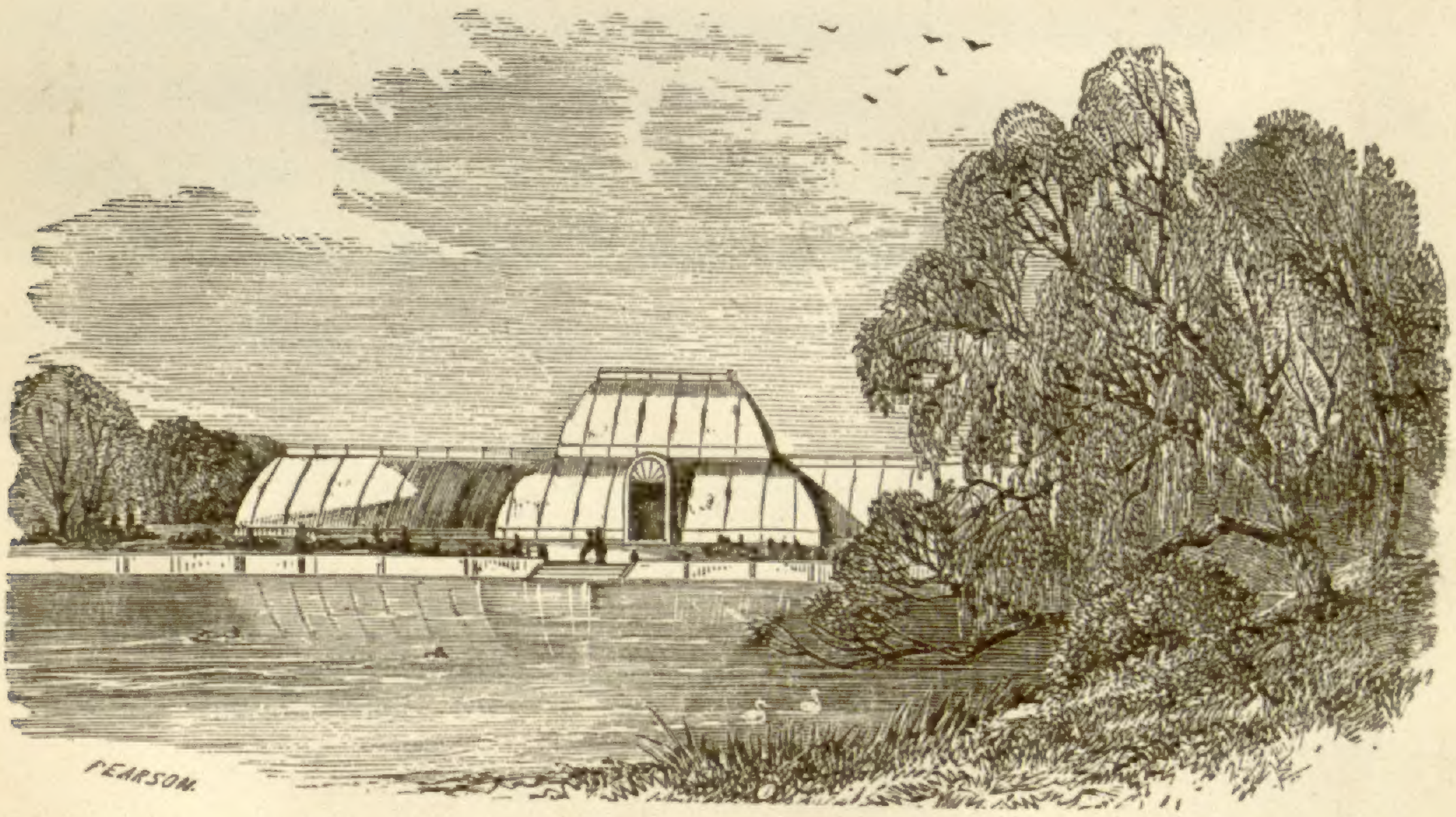

"Then spring the living herbs profusely wild
O'er all the deep-green earth, beyond the power
Of botanist to number up their tribes.—*Thomson.*

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1878.

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Mo. Bot. Garden,
1897.

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TO

ROBERT HOGG, ESQ., LL.D., F.L.S.,

SECRETARY OF THE ROYAL HORTICULTURAL SOCIETY.

My Dear Hogg,

Pray accept the dedication of the hundred and fourth volume of the Botanical Magazine, in token of the high appreciation entertained of your long and disinterested labours in the promotion of practical horticulture, and of the value of your many contributions to the literature of that important branch of botanical science.

May it also recall to your memory the pleasant and instructive visits you and I have together paid to horticultural meetings at home, near home, and in far distant countries.

Very sincerely yours,

J. D. HOOKER.

Royal Gardens, Kew,

Dec. 1*st*, 1878.

W.H.Fitch del et Lith.

Vincent Brooks Day & Son Imp.

Tab. 6337.

LILIUM cordifolium.

Native of Japan.

Nat. Ord. Liliaceæ.—Tribe Tulipeæ.

Genus Lilium, *Linn.* (*Baker in Journ. Linn. Soc.* vol. xiv. p. 226).

Lilium (*Cardiocrinum*) *cordifolium;* bulbo ovoideo squamis paucis crassis adpressis, caule elato stricto basi nudo, foliis multis petiolatis sparsis cordatis ovatis vel subrotundis inferioribus confertis, racemo laxo 6–12-floro, pedicellis crassis brevibus, bracteis magnis lanceolatis caducis, perianthii diu infundibularis magni albidi segmentis oblanceolatis obtusis supra medium flore expanso falcatis, interioribus facie deorsum purpurascentibus haud papillosis, staminibus parallelis leviter declinatis perianthio paulo brevioribus, stylo staminibus longiore, capsulis magnis oblongis apice umbilicatis.

L. cordifolium, *Thunb. in Trans. Linn. Soc.* vol. ii. p. 332; *Schultes fil. in Roem. et Schultes Syst. Veg.* vol. vii. p. 420; *Sieb. et Zucc. Fl. Jap.* vol. i. p. 33, tabs. 13, fig. 2, and 14; *Kunth, Enum.* vol. iv. p. 268; *Flore des Serres*, tab. 216; *Miquel in Ann. Mus. Lug-Bat.* vol. iii. p. 157; *Baker in Journ. Linn, Soc.* vol. xiv. p. 227; *Franch. et Savat. Enum. Jap.* vol. ii. p. 72; *Gard. Chron.* 1877, part ii. p. 305, fig. 61.

Hemerocallis cordata, *Thunb. Fl. Jap.* p. 143; *Gaertn. Fruct.* vol. ii. tab. 179. fig. 5.

Sjire, *Banks Icon. Select. Kæmp.*, tab. 46.

Uba-juri and Gawa-juri, *So mokou Zoussetz*, vol. v. tab. 81.

The two giant Lilies, *L. giganteum*, of the Himalayas, and *L. cordifolium* of Japan, differ extremely from all the other species in habit and leaf, and resemble one another very closely. For an account of the former we refer our readers to tab. 4673. The present plant has been known to European botanists for a century and a half, but has been found very difficult to establish in cultivation. So far as I am aware, the specimen from which the present plate was drawn, which flowered in the open air in Kew Gardens in July of this

January 1st, 1878.

present year, is the second that has been flowered in England, the first being with Mr. Noble at Bagshot many years ago. Of our continental correspondents, Max Leichtlin, Esq., of Baden-Baden, from whom this plant was received, and E. H. Krelage and Son, of Haarlem, have both cultivated it successfully. It is said to be widely dispersed through the Japanese islands, growing in shady mountain woods, but not to be anywhere plentiful, and it has been found also in the Kurile group. I cannot look upon *L. Glehnii*, F. Schmidt, as more than a slight variety of *cordifolium*, differing from the type by its more numerous smaller flowers. We have specimens of it in the Kew herbarium from the neighbourhood of Hakodadi, gathered by Dr. Albrecht and the late Mr. C. Wilford.

Descr. *Bulb* ovoid, two to three inches in diameter; scales few, thick, whitish, ovate, adpressed. *Stem* stiffly erect, three or four feet high, an inch thick at the base, naked to a height of about a foot, the lower leaves crowded and very large, the upper ones laxer, diminishing gradually in size to the bottom of the inflorescence. *Leaves* all furnished with a broad flat petiole; blade sometimes nearly a foot long, prominently cordate, roundish or broad ovate, the veining as thoroughly reticulated as in an ordinary broad-leaved Exogen. *Raceme* in the typical form as figured about half a foot long, four- to six-flowered; pedicels very short and stout; bracts large, lanceolate, falling before the flowers fully expand. *Perianth* permanently funnel-shaped, five or six inches long, milk-white on the outside, tinged with green towards the base, the oblanceolate obtuse segments spreading falcately in the expanded flower in the upper half, narrowed gradually from three-quarters of the way up to the base; the three inner ones purple on the face in the lower half, entirely destitute of any papillæ or distinct bordered groove. *Stamens* parallel, slightly declinate, a little shorter than the perianth. *Ovary* clavate, above an inch long; style parallel with the stamens, and just overtopping them; stigma capitate, obtusely three-lobed. *Capsule* oblong, two inches long, umbilicate at the apex; seeds packed very tightly in the cells; edge of the three valves very fibrillose.—*J. G. Baker.*

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Vincent Brooks, Day & Son, Imp.

TAB. 6338.

KOELLESTEINIA GRAMINEA.

Native of British Guiana.

Nat. Ord. ORCHIDEÆ.—Tribe VANDEÆ.

Genus KOELLENSTEINIA, *Reichb. f.* (*Walp. Ann.* vol. vi. p. 551.)

KOELLENSTEINIA *graminea;* cæspitosa, acaulis, pseudobulbis 0, foliis ¼–⅓ poll. latis gramineis acuminatis, racemo interdum basi composito 6–8-floro, perianthio campanulato stramineo brunneo fasciato, sepalis oblongis obtusis, lateralibus paullo majoribus basi breviter connatis, petalis consimilibus, labello unguiculato 3-lobo, lobis lateralibus erectis dimidiato-oblongis obtusis, terminali latiore quam longo truncato, tuberculo disci carnoso truncato postice bilobo.

K. graminea, *Rchb. f. in Bonpland.* Oct. 15, 1856; *Walp. Ann.* vi. p. 552.

MAXILLARIA graminea, *Lindl. in Bot. Reg.* xxi (1836) sub. tab. 1802.

A very elegant Guiana orchid collected by Schomburgk, and described by Lindley in 1836 under *Maxillaria*, from specimens procured by Messrs. Loddiges. Since that period the genus *Koellenstcinia* has been established upon various species of *Maxillaria* by Reichenbach in 'Bonplandia.' All of them are South American, and natives of the mountain regions of Guiana, Venezuela and New Grenada. Another Demerara species, *K. tricolor*, Lindley, is very closely allied to this, differing in the greenish sepals and petals which have no transverse band.

K. graminea is a well-known plant in cultivation, and the specimen from which the accompanying drawing was made flowered in the Royal Gardens in January of the present year.

DESCR. *Stems* densely very short, tufted; pseudobulbs none; roots stout. *Leaves* grass-like, four to six inches long, by a quarter to one third inch broad, gradually attenuated at both ends, acuminate, slightly keeled, nerves very

faint. *Racemes* equalling or exceeding the leaves, sometimes branched at the base; peduncle and rachis very slender; bracts sheathing, floral short ovate acute, those on the peduncle longer, appressed. *Flowers* campanulate, six to eight, remote, one half to three fourths of an inch in diameter; ovary and pedicel one quarter of an inch long. *Sepals* and petals nearly equal and similar, the two lateral sepals slightly connate at the base, all pale straw-coloured with transverse bands of red-brown below the middle. *Lip* of the same colour as the sepals and petals, rather shorter than the sepals, clawed, 3-lobed; lateral lobes suberect, dimidiate-oblong, obtuse; terminal lobe transversely oblong, almost reniform; disk transversely streaked with red, and bearing a prominent 2-lobed callus. *Column* short, longitudinally streaked with red.—*J.D.H.*

Fig. 1, Flower; 2, lateral view of lip and column:—*both enlarged*.

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W.H.Fitch. del et Lith

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Tab. 6339.

ANTHURIUM TRIFIDUM.

Of uncertain origin.

Nat. Ord. Aroideæ—Tribe Orontieæ.

Genus Anthurium, *Schott* (*Prodr. Syst. Aroid.* p. 436).

Anthurium (*Semæophyllum*) *trifidum;* caudice brevi, petiolo foliorum fere teretiusculo stricto 10–18 poll. longo, geniculo longiusculo, lamina profunde trifida basi lata truncata vel medio in geniculum late cuneatim angustata, lobo centrali 9–13 poll. longo oblongo- v. ovato-lanceolato acuminato, lobis lateralibus brevioribus falciformibus oblongo- vel ovato-ellipticis oblique obtusatis, costa media subtus prominente nervis utrinque circiter 9-12, pedunculo petiolis breviore gracili, spatha rubescente reflexa oblongo-lanceolata spadice breviter stipitato juliforme gracili breviore.

Philodendron Holtonianum, *M. T. M. in Gard. Chron.* 1876, ii. p. 367 (*non* Schott, Prodr. Aroid. 287).

Anthurium trilobum, Linden, Cat. 1877 ? (*sine descr.*).

Of the origin of this interesting Aroid, I am unable to speak with any certainty. It is alleged to have been introduced through the "Challenger" Expedition from the Eastern Indian Archipelago; but no *Anthurium* is known from that region, nor have I seen a specimen corresponding to our plant in the dried collections made by the naturalist of that expedition. Dr. Masters, figuring it in the 'Gardeners' Chronicle' (1876, ii. p. 365), having only a leafy specimen to judge from, thought it might prove to be identical with *Philodendron Holtonianum*, Schott, of New Granada. Now, however, that we have had an opportunity of examining flowering specimens, there can be no doubt that the plant is a genuine *Anthurium*, referable, I think, to the "Grex" *Semæophyllum* of Schott, a division of the genus including, according to him, but four species, of none of which do we happen to have authenticated specimens at Kew. As I cannot securely identify it with the description of any of these, I let it go as a probable novelty. The nearest ally of which I have seen specimens is a plant which my colleague, Mr. N. E. Brown,

who has specially occupied himself with the study of living Aroids, identifies with *A. ochranthum*, C. Koch, introduced from Costa Rica. In this species the leaf is by no means so deeply trifid nor the lateral lobes elongate and falciform as in our plant.

Descr. *Stem* in our specimen very short, concealed by withered scales. *Petioles* elongate, slender, nearly terete, very faintly flattened upon the inner face, of warm reddish-brown colour, ten to eighteen inches in length; *Leaf-blade* ten to fifteen inches long, broadly deeply trifid, base broadly rounded sub-truncate, or with a broadly cuneate exit into the geniculus, which is half to three-quarters of an inch long; median lobe oblong-lanceolate, acuminate, from the base of the leaf to its apex ten to sixteen inches, three and a half to four and a half inches broad; lateral lobes obliquely oblong-ovate, obtuse, somewhat falciform, shorter than the median lobe, from the geniculus to their apex eight to ten inches, all deep shining green above, paler beneath; three principal nerves divergent from the apex of the petiole, prominent beneath, of the lateral lobes giving off the secondary nerve at from three-quarters of an inch to two inches, and another at two to three and a half inches from the base; principal lateral veins from median nervure about nine to twelve on each side. *Peduncle* slender, erect, rather shorter than the petioles, red or reddish-brown in colour, as is the more or less spreading or reflexed oblong-lanceolate acuminate *spathe*, which is slightly shorter than the slender terete, shortly stipitate *spadix*. *Perianth-segments* four, broadly rotundate or obovate-quadrate, concave, thickened above, overarching the four *stamens;* filaments much flattened, obovate; *anther-cells* extrorse divergent below. *Stigma* obtusely four-angled.—*D. Oliver.*

Fig. 1, Reduced figure of entire plant; 2, Leaf-base and geniculus; and 3, Upper part of peduncle and inflorescence, both natural size; 4, Pair of flowers; 5 and 6, same, singly, seen from side and above:—*magnified.*

Tab. 6340.

OREOPANAX Thibautii.

Native of Chiapas in Mexico.

Nat. Ord. Araliaceæ.—Series Hedereæ.

Genus Oreopanax, *Dene. and Planch.* (*Benth. et Hook. f. Gen. Plant.* vol. i. p. 949).

Oreopanax *Thibautii;* glaberrima, foliis longe petiolatis pedatim 5–7-foliolatis, foliolis petiolulatis anguste elliptico-lanceolatis v. oblanceolatis basi et apice longe angustatis integerrimis glaberrimis, stipulis 0, capitulis ½ unc. diam. breviter pedunculatis in racemum terminalem strictum minute stellato-puberulum demum glabratum dispositis, bracteis minutis triangularibus acutis, bracteolis floribus immixtis elongato-obcuneatis apice villosis, petalis 5.

Aralia Thibautii, *Hort.*

The genus *Oreopanax*, though so unlike our Ivy, is so closely allied to it, that except by habit and locality I do not see how the two are to be kept distinct. This remark further applies to a host of genera of *Araliaceæ*, which, when reduced to their technical characters of flower and fruit, would be merged into one. As defined in the Genera Plantarum, *Hedera* is confined to the English Ivy, which, under various forms, extends all over the north temperate regions of the old world, together with an Australian representative with pinnate leaves; the species of *Oreopanax* on the other hand are very numerous, and are all natives of the mountainous tropical regions of the new world, extending from Mexico to Peru. *O. Thibautii* is a native of Pine forests in Chiapas, a province of Mexico, whence I have seen specimens from Linden (No. 1651), and Ghiesbrecht (No. 147). It is very closely allied to, and perhaps only a variety of, *D. Xalapensis*, which has however much larger flower-heads, with shorter stouter peduncles, and rather broader leaflets. A third closely allied Mexican form from Orizaba, has heads only a quarter of an inch in diameter, on slender peduncles an inch long; and a fourth,

collected by Seeman in Boquitte, has fewer flowers in the heads, distinct recurved styles, and much broader leaflets.

O. Thibautii was received under this name from Verschaffelt in 1862, and flowered at Kew in 1869 and subsequently, in the month of November.

Descr. A small tree, glabrous except for a minute stellate pubescence on the youngest parts. *Branches* as thick as the little finger. *Leaves* at the ends of the branches, digitately 5–7-foliolate; leaflets three to six inches long, elliptic-lanceolate or ob-lanceolate, gradually narrowed at both ends, quite entire, coriaceous, smooth, glossy above, nerves spreading; petiole cylindric, 4–8 inches long; petiolules one quarter to half an inch long. *Flowers* (male?) in dense globose heads, one third of an inch in diameter, collected in a straight terminal raceme a foot long; pedunces stout, half an inch long; bracts and outer bracteoles minute, triangular, acute; bracteoles amongst the flowers elongate wedge-shaped, with rounded villous apices. *Calyx*-limb obscurely 5-toothed. *Petals* 5, triangular-oblong, glabrous. *Stamens* with filaments twice as long as the petals. *Ovary* (imperfect?) with a hemispheric vertex, and short columnar style.—*J.D.H.*

Fig. 1, Head of flowers with peduncle and bract; 2, bud and bracteole; 3, flower laid open; 4, ovary:—*all enlarged.*

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Tab. 6341.

BESLERIA Imray.

Native of Dominica.

Nat. Ord. Gesneraceæ.—Tribe Cyrtandreæ.

Genus Besleria, *Linn.* (*Benth. et Hook. f. Gen. Plant.* vol. ii. p. 1015.)

Besleria *Imray;* glaberrima, caule quadrangulari erecto, foliis sessilibus v. brevissime petiolatis obovato-oblongis v. oblanceolatis acuminatis serratis basi angustata obtusa membranaceis nervis utrinque 10–12, floribus axillaribus solitariis v. fasciculatis, pedunculis calyce æquilongis v. longioribus, calycis tubo ventricoso puberulo, lobis tubo brevioribus ovatis acutis dorso infra apicem corniculatis, corolla aurea calyce duplo longiore, tubo inferiore subcylindraceo superne antice ventricoso fauce contracta, lobis parvis rotundatis patentibus intus puberulis, staminibus inclusis, disco pateriforme, ovario glaberrimo.

B. Imray, *Hook. in herb.*

Besleria, as established by Linnæus, contained three species, of which one alone, the original *Besleria* of Plumier is retained in the genus, the rest being referred to other genera of *Gesneraceæ*. As remodelled by Bentham, the modern genus, retaining as its type the Linnæan *B. lutea*, has besides this about 50 species, several of which had been made the types of genera by Œrsted and by Bentham himself. The only one of these species that has hitherto figured in this Magazine is *B. Leucostema* (*Hypocyrta leucostema*, Hook., tab. nost. 4310). The geographical range of the genus is from Mexico and the West Indies to Brazil and Peru, and many of the species are undescribed.

B. Imray is a native of the Island of Dominica, where it was discovered by our excellent correspondent of nearly half a century's standing, Dr. Imray, and to whom we are indebted for both living and dried specimens, the former of which first flowered at Kew in 1862. As a species it is most nearly allied to the common West Indian *B. lutea* L.,

which is also found in Dominica, as well as in Jamaica, St. Vincent and St. Lucia and Martinique, and which has petioled leaves.

Descr. A glabrous erect herb, with smooth obtusely 4-angled stems. *Leaves* opposite, four to seven inches long by one and a half to three broad, sessile, or very shortly petioled, glabrous on both surfaces, obovate-oblong or oblanceolate, acuminate, serrate, base rounded or subcordate; nerves 10–12 on each side of the midrib, ascending and arched. *Flowers* solitary or fascicled on the axils of the leaves; peduncles half to one inch long, minutely puberulous. *Calyx* one third inch long, puberulous; tube inflated, tapering to the base; lobes about equalling the tube, ovate, acute, with a mucro at the back of the tip. *Corolla* yellow, twice as long as the calyx; tube cylindric below, gradually becoming ventricose in front close to the contracted mouth; lobes small, rounded, horizontal, with a few hairs on the upper surface, glabrous within the tube. *Stamens* included, rudiment of the fifth strap-shaped. *Disk* patériform. *Ovary* globose, tapering into a stout style; stigma capitate.—*J. D. H.*

Fig. 1. Flower; 2. corolla laid open; 3. disk and ovary —*all enlarged.*

J N Fitch Lith.

Reeve & Co. London.

Tab. 6342.

BILLBERGIA pallescens.

Native of Brazil.

Nat. Ord. Bromeliaceæ.—Tribe Ananasseæ.

Genus Billbergia, *Thunb. et Holm.* (*Schultes fil. in Roem. et Schultes Syst. Veg.* vol. vii. p. 1254.)

Billbergia *pallescens* ; acaulis, foliis productis 9–12 suberectis loratis coriaceis 1–2-pedalibus utrinque viridibus tenuissime albido-lepidotis albo-punctatis haud fasciatis, aculeis marginalibus minutissimis, scapo pallido glabro subpedali sursum bracteis 3–4 magnis lanceolatis splendide rubris prædito, floribus 10–20 in spicam laxam cernuam dispositis, omnibus solitariis vel inferioribus interdum 2–3-nis breviter pedicellatis, ovario viridi glabro oblongo crebre sulcato, sepalis lineari-oblongis glabris viridibus apice violaceis ovario longioribus, petalis longe exsertis lingulatis viridibus apice violaceis basi squamatis, staminibus petalis æquilongis, antheris oblongis aurantiacis, stigmatibus exsertis.

B. pallescens, *K. Koch et Bouché App. Ind. Semin. Hort. Berol.* anno 1856 ; *Walp. Ann.* vol. vi. p. 76 ; *E. Morren in Belg. Hort.* vol. xv. (1865) p. 65, tab. 5–6.

B. pallida and Wiotiana, *Hort.*

This is a little known, very distinct *Billbergia*, similar in habit to *B. vittata* and *Moreliana*, marked by its many-grooved ovary and large green flowers. It was introduced more than twenty years ago from Central Brazil by M. Libon. Our drawing was made from a specimen that flowered in the Kew collection last November. Our plant differed from that figured in the 'Belgique Horticole' by having a drooping instead of an erect inflorescence and by having all the flowers solitary and none of them subtended by the bright red bracts which add so much to the decorative value of these plants, the highest of these bracts in our specimen being placed below the base of the inflorescence. In spite of these differences we believe the two plants are mere forms of the same species.

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Descr. Acaulescent. Produced *leaves* nine to twelve to a tuft, sub-erect, lorate, rigidly coriaceous in texture, the largest reaching a length of one and a half or two feet, one and a half or two inches broad at the middle, dilated to three inches at the clasping base, thinly white lepidote over both surfaces, the face dark green, the back paler and more distinctly striated, decorated with small scattered round white dots, but without any distinct transverse bars, the tip deltoid-cuspidate, the marginal prickles very minute. *Scape* about a foot long, whitish, glabrous, furnished at the top with three or four large erecto-patent, bright red lanceolate bracts, and below these, in the part hidden by the imbricating leaves, a few others which are adpressed to it and paler in colour. *Spike* lax, pendulous, three or four inches long, composed of ten to eighteen subsessile flowers. *Ovary* oblong, glabrous, bright green, half an inch long, with numerous narrow parallel vertical ribs and grooves. *Sepals* linear-oblong, horny, three quarters of an inch long, naked, pale green, tipped with violet. *Petals* above an inch longer than the sepals, lingulate, green, tipped with violet, distinctly scaled at the base. *Stamens* as long as the petals; anthers oblong, orange-yellow, a sixth of an inch long. *Stigmas* exserted, a sixth of an inch long, much twisted.—*J. G. Baker.*

Fig. 1, A single petal and stamen; fig. 2, sulcate ovary, style and stigmas:—*natural size.*

J N Fitch. Lith

Vincent Brooks Day & Son Lith.

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Tab. 6343.

IRIS cretensis.

Native of Greece, Asia Minor, etc.

Nat. Ord. Iridaceæ.—Tribe Euirideæ.

Genus Iris, *Tourn.* (*Baker in Journ. Linn. Soc.* vol. xvi. p. 136).

Iris (*Pogoniris*) *cretensis* ; acaulis, breviter rhizomatosa, foliis pluribus anguste linearibus 6–9-pollicaribus acutis subcoriaceis crebre striatis, spathæ unifloris valvis magnis lanceolatis, ovario oblongo sessili, perianthii tubo viridulo 3–4-pollicari, limbi lilacino-purpurei 2½–3-pollicaris segmentis oblanceolatis æquilongis omnibus longe unguiculatis, exterioribus lamina falcata deorsum pallida luteo carinata lineis obliquis lilacino-purpureis decorata, interioribus paullo angustioribus erectis concoloribus, stigmatorum cristis lanceolatis extrorsum serrulatis, antheris albidis filamento brevioribus.

I. cretensis, *Janka in Oester. Botan. Zeitschrift* 1868, p. 382 ; *Baker in Gard. Chron.* 1876, part ii. p. 143 ; *Journ. Linn. Soc.* vol. xvi. p. 138.

I. cretica, *Herbert in Herb. Kew., inedit.*

I. stylosa, *var.* angustifolia, *Boiss. Diagn.* part xiii. p. 15 ; *Tchihat. Asia Minor Bot.* vol. ii. p. 516.

I. humilis, *Sieber, Crete, Exsic. non M. B.*

This pretty little *Iris* has a wide distribution round the eastern shores of the Mediterranean, as it occurs in Greece, Asia Minor, Crete (where it ascends the hills to 5000 feet above sea-level), and the Ionian Islands. It has been confounded with the South Russian and Transylvanian *humilis* and the Algerian *unguicularis*, but is quite distinct from both, and the three inhabit different geographical areas. This fact was recognised long ago by Dean Herbert, and he gave it, in the Hookerian herbarium, the manuscript name of *Iris cretica* but this was never published, so far as I have been able to ascertain. It belongs to the small group of acaulescent beardless Irises, of which the two species just named, and a third (*Iris Rossii*, Baker in Gard. Chron. 1877, part ii. p. 809), recently discovered in the extreme north of China, are the only remaining known members. It has been introduced

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into cultivation by Mr. Elwes. It flowered with him at Cirencester last November, but its proper season is April and May, and it is perfectly hardy. Both in this and *unguicularis* I have seen the filaments sometimes decidedly cohering in the lower half, as is typical in *Morœa*.

Descr. *Rhizome* short-creeping, a quarter or a third of an inch in diameter. *Tufts* crowded, consisting of many leaves and a single central flower. *Leaves* linear, erect, firm in texture, acute, finely striated, not more than a twelfth or an eighth of an inch in breadth, the most developed reaching a length of six or nine inches. *Spathe* of two lanceolate acuminate pale green valves, sometimes as long as or longer than the tube. *Ovary* oblong, subsessile within the spathe. *Perianth-tube* green, cylindrical, three or four inches long; limb bright lilac-purple, two and a half or three inches long, the segments nearly equal in length and all furnished with long claws, the blade of the three outer ones reflexing from its base, veined in the lower half with bright yellow, and furnished with many oblique lines of lilac-purple on a white ground; the blade of the three inner ones rather narrower, concolorous, and permanently erect. Blade of the *Stigmas* an inch and a half long; crests linear, serrulate on the outer borders. *Anthers* white, above half an inch long, shorter than the flattened filaments.—*J. G. Baker.*

Fig. 1. A flower with the spathe and perianth-segments stripped away:—*slightly enlarged.*

J.N. Fitch. Lith.

Mintern Bros. Lith.

IONE PALEACEA.

Native of Upper Assam.

Nat. Ord. Orchideæ.—Tribe Vandeæ.

Genus Ione, *Lindl.* (*Lindl. Fol. Orchid. Ione*).

Ione *paleacea*; rhizomate repente, pseudobulbis ovoideis lævibus viridibus, folio 6–8-pollicari lineari obtuso carinato enervi basi angustata canaliculata, scapo gracili folio longiore, spica elongata substricta multiflora, bracteis pollicaribus erectis lanceolatis acuminatis concavis, floribus nutantibus pollicaribus, sepalo postico lanceolato fornicato pallide viridi purpureo-venoso, lateralibus in laminam æquilongam apice 2-dentatam labello suppositam connatis, petalis parvulis ovato-rotundatis erosis pallide viridibus, labello brevissime unguiculato trulliformi marginibus erosis disco basi bicarinato, carinis secus laminam productis et in apicem labelli tumescentem oblongam obtusam desinentibus, columna apice bi-aristata.

I. paleacea, *Lindl. Fol. Orchid.* Ione, p. 2.; *Reichb. f. in Walp. Ann.* vi. 636.

Dipodium, *Griffith. Posth. Papers; Notulæ*, part iii. p. 405; *Ic. Plant. Asiat.* t. 327. *f.* 1.

There is some uncertainty as to the native country of this plant, of which the only authentic specimen known to me is Griffith's, preserved in the Dr. Lindley's Herbarium to which the latter botanist has put a ticket with "Darjeeling, Wm. Griffith, 1844," upon it. But Dr. Lindley has attached to this specimen the note, "*Dipodium*, Griffith Notulæ, t. cccxxvii. fig. 1." Now Griffith never was at Darjeeling, though he employed collectors there, and on referring to his Notulæ, I find that he gives as the habitat "from trees on Thumathaya in the Mishmi Mountains;" and these are in Upper Assam. Considering further, that Griffith's drawing was made from a living plant, and that no other botanist has found the plant at Darjeeling or elsewhere in Sikkim, I think, there can be no doubt that the Mishmi Mountains are its native country. With regard to the description in Griffith's

'Notulæ' it is so disfigured by misprints that no dependence can be placed upon it; the sepals and petals are described as light fuscous, veined with purple, and the labellum as fuscous green, with purplish margins. In Griffith's dried specimen the lip evidently retains the brown colour of our figure, and the sepals are pale with purple streaks; however the discrepancies are to be explained; our plant is unquestionably identical with Griffith's specimen, and is the *Ione paleacea* of Lindley. There are two other Mishmi species of *Ione* described by Griffith and Lindley, and there is also a Sikkim one (*I. cirrhata*, Lindl.) found by myself, which has oblong leaves, and very differently formed sepals resembling the rude drawing of Griffith more than that of *I. paleacea*. Our plant was received from Dr. King, of the Calcutta Botanic Gardens, and flowered in October of last year at Kew.

Descr. *Rootstock* short, creeping. *Pseudobulbs* one to one and a half inches long, ovoid, smooth, green. *Leaf* six to eight inches long, and one broad, linear, obtuse, narrowed into a deeply channelled base, but hardly petioled, keeled, dark green. *Scape* stiff, slender, erect, longer than the leaf; its sheaths closely appressed. *Spike* four to five inches long, many-flowered; bracts one inch long, lanceolate, long-acuminate, erect, concave. *Flowers* drooping, an inch long. *Sepals* pale green, with red stripes; posticous lanceolate, arched, lateral confluent into a 2-toothed concave body placed under the lip. *Petals* small, rounded, erose, pale yellow-green, spreading. *Lip* as long as the sepals, trowel-shaped, red-brown, margins erose, claw very short; disk with two elevated keels at the base, which sink towards the disk, and are carried along the mesial line to the tip of the lip, where they end in an oblong thick calluss. *Column* short, with 2-spurs from the anther-cells, in which the caudicles of the pollen masses are lodged.—*J. D. H.*

Fig. 1, Flowers; 2, column; 3, pollen masses:—*all enlarged.*

J. N. Fitch Lith

Vincent Brooks Day & Son Lith

L. Reeve & Co. London

Tab. 6345.

PLEROMA GAYANUM.

Native of Peru.

Nat. Ord. Melastomaceæ.—Tribe Osbeckieæ.

Genus Pleroma, *Don.* (*Benth. and Hook. f. Gen. Plant.* vol. i. p. 743).

Pleroma *Gayanum ;* fruticosum, caule ramisque gracilibus tenuiter strigillosis, foliis petiolatis elliptico-ovatis basi acutis obtusis v. subcordatis 5-nerviis acutis v. acuminatis serrulatis utrinque appresse hirtis, paniculis ad apices ramulorum trichotome corymbosis, calycis villosi lobis subulato-lanceolatis tubum campanulatum æquantibus, petalis late obovatis albis basin versus stramineis, calyce fructifero globoso setuloso.

P. Gayanum, *Triana in Trans. Linn. Soc.* vol. xxviii. p. 46.

Micranthella Gayana, *Triana in Ann. Sc. Nat. ser.* 3, vol. xiii. p. 350.

Pleroma is one of the very large genera of the great order *Melastomaceæ*, to which some of the most brilliant stove plants hitherto introduced, and yet to be introduced, belong; of the former, *Medinilla magnifica* (tab. 4533) and *Pleroma macrantha* (tab. 5721) are examples, whilst of the latter, *Blakea trinervia* and *B. lancifolia*, both West Indian plants, and one of them common, are conspicuous instances. With regard to *Blakea trinervia* especially, it is difficult to understand why a plant so common and so well known in some of the West Indian islands for its extraordinary beauty should never have become common in our stoves. It has been received at Kew from Dr. Imray, of Dominica, but always in a dying condition. Some of the most eminent nurserymen of the continent have been equally baffled in their attempts to introduce it. Like many tropical hard-wooded plants, it is not easy of cultivation, or rather, perhaps, impatient of confinement during the voyage.

Of *Pleroma* upwards of a hundred species, all American, are enumerated in Triana's valuable monograph of the *Melasto-*

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maceæ, published in the Linnean Transactions; of these about ten have been introduced into cultivation, seven of which are figured in this work; one (tab. 3766) as a *Lasiandra*, two as species of *Melastoma* (tabs. 2337 and 2630), and the remainder under their proper generic names.

Pleroma Gayanum is one of the least conspicuous of the genus, it is a native of Cuzco, in Peru, where it was discovered by the French Botanist and traveller, Claude Gay, and has been since collected by Lechler. The plant here figured was imported by Messrs. Veitch, through their collector, Mr. Davies, and flowered with them in October, 1874.

Descr. A slender branching herbaceous plant, shrubby at the base; branches tetragonous, covered with appressed minute rigid hairs. *Leaves* three to four inches long, ovate elliptic-ovate or oblong, acute or acuminate, base acute obtuse or subcordate, both surfaces nearly equally covered with appressed rather silky hairs, 5-nerved, with an intramarginal shorter nerve; petiole one third to one half inch long. *Flowers* one inch diameter, on slender pedicels, collected in small corymbs that are arranged in trichotomously branched terminal panicles. *Calyx-tube* campanulate, hispid, as long as the subulate-lanceolate lobes. *Petals* white, suffused with straw-colour towards the base, broadly obovate; anthers yellow. *Capsule* bristly at the tip, enclosed in the hispid calyx-tube.—*J. D. H.*

Fig. 1. Flower with the petals removed: 2, stamen; 3, ovary:—*all enlarged.*

J N Fitch lith

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TAB. 6346.

CROSSANDRA GUINEENSIS.

Native of Western Tropical Africa.

Nat. Ord. ACANTHACEÆ.—Tribe JUSTICIEÆ.

Genus CROSSANDRA, *Salisb.* (*Benth. et Hook. f. Gen. Plant.* vol. ii. p. 1094.)

CROSSANDRA *guineensis*; herbacea, humilis, caule brevi petiolisque furfuraceo-pubescentibus, foliis breviter petiolatis ellipticis v. oblongo-obovatis obtusis basi angustata obtusa v. cordata superne saturate viridibus nervis nervulesque aureis, subtus rufescentibus costa nervisque pubescentibus, spica sessili simplici stricta gracili, bracteis erectis appressis oblongo-lanceolatis mucronato-aristatis integerrimis v. apices versus ciliato-serratis, sepalis lanceolatis acuminatis, corolla pallide lilacina tubo gracili curvo, lobis ovatis acuminatis 2-posticis minoribus.

C. guineensis, *Nees in DC. Prodr.* xi. 281.

This charming plant was described by Nees von Esenbeck, forty years ago, from dried specimens in the Hookerian Herbarium received from the coast of Guinea, but from which the beauty of its foliage could not be inferred. Since then it has been collected by that most successful of all travellers on the Guinea coast, Gustav Mann, who found it in the mountainous region of the island of Fernando Po, at an elevation of 2000 ft., and in the Sierra del Crystal range, in lat. 1° N., in 1862.

The genus *Crossandra*, though a small one, containing only six or eight species, has long been known in cultivation; two species have been figured in this magazine, namely, *C. undulæfolia* (tab. 2186), of India, with vermilion flowers, introduced by Roxburgh in the beginning of the century, and *C. flava*, with golden flowers, tab. 4710, from Sierra Leone. Most of the species are Tropical African.

C. guineensis was introduced by Messrs. Veitch, who sent specimens for determination and figuring in October of last year.

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Descr. A low herb, with a woody root. *Stem* two to six inches high, erect, rather stout, rarely branched, light red, cylindric, covered, as well as the petioles, with a furfuraceous pubescence. *Leaves*, two to four pairs, horizontal, shortly petioled, three to five inches long, elliptic, sometimes obovate or oblong, obtuse, base contracted obtuse or cordate, membranous, deep green above, with golden reticulated nerves, beneath reddish, with pubescent midrib and nerves; petiole a quarter to half an inch, stout, reddish. *Spike* solitary, sessile, three to five inches high, strict, apex pungent, many-flowered; bracts, many pairs, half to three-quarters of an inch long, imbricating, appressed, hard and coriaceous, lanceolate, acuminate, with a setaceous pungent point, green glabrous, closely striate, quite entire or ciliate-serrate towards the tip. *Flowers* pale lilac. *Sepals* lanceolate, acuminate, quite entire. *Corolla tube* exserted, very slender, incurved, glabrous; limb five-lobed, lobes acuminate, posterior smallest ovate, lateral larger more broadly elliptic-ovate, anterior largest obovate apiculate. *Stamens* towards the mouth of the corolla, filaments very short; anthers oblong, acute, margins of cells ciliate. *Ovary* glabrous; style hairy, stigma small. —*J. D. H.*

Fig. 1, Bracteole; 2, flower; 3, corolla laid open; 4, stamens; 5, calyx and style; 6, ovary and disk; 7, the same cut longitudinally :—*all enlarged.*

J.N.Fitch. lith

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Tab. 6347.

PANDANUS UNGUIFER.

Native of Northern Bengal.

Nat. Ord. Pandaneæ.

Genus Pandanus, *Linn.* (*Endlicher, Gen. Plant.* p. 242).

Pandanus *unguifer ;* humilis, caule gracili prostrato, foliis subdistichis 2-3 pedalibus 1½–2-poll. latis lineari-loratis junioribus abrupte senioribus sensim caudato-acuminatis marginibus et costa subtus spinoso-dentatis, syncarpio sessili suberecto ovoideo diametro pugilli, drupis obovoideo-cuneatis monospermis lateribus angulatis vertice hemisphærico lævissimo medio ungue parvo duro nitido acuto v. emarginato v. 2-dentato v. bicorni abrupte terminatis.

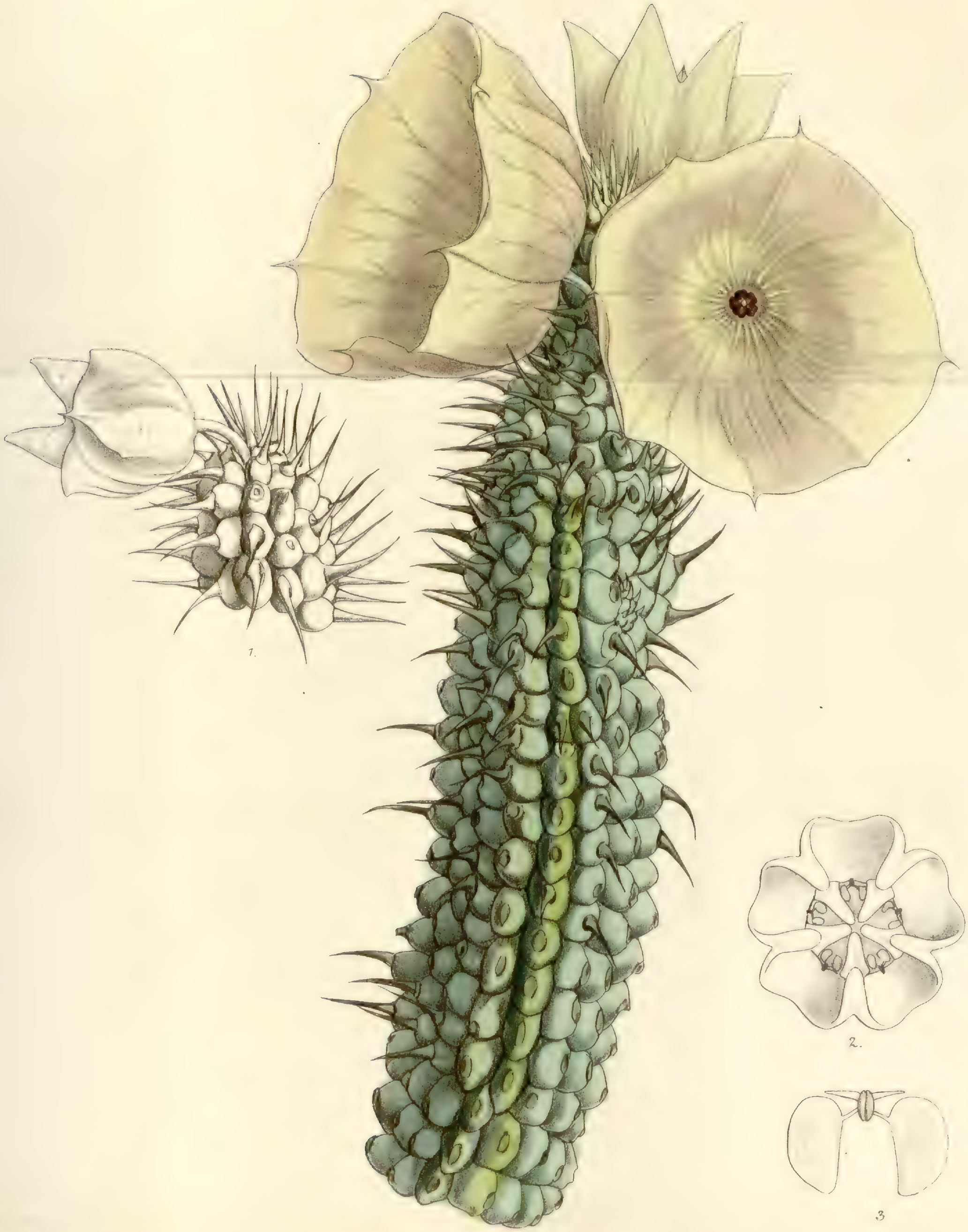
I have failed to identify this dwarf *Pandanus* with any described species, and yet it cannot be an uncommon Bengal plant. It is not included in Kurz's Revision of the Indian Screw-Pines in Seemann's Journal of Botany (v. 5, p. 93). The obvious comparison was with Roxburgh's *P. fœtidus*, which is the common dwarf species of Bengal and Assam, and which forms, like this, a bush on the ground in the forest, but that plant has a drooping head with very different, longer, narrower drupes, each with a hexagonal crown that ends in a simple spine, sometimes nearly half an inch long ; the drupes too, are far more numerous and smaller. I have gathered *P. fœtidus* in Sikkim, Silhet, Cachar and Chittagong, and found it very constant in its character, and totally different from *P. unguifer*, whose fruit more resembles that of the arboreous *P. furcatus*. Of this latter, indeed, I have thought that *P. unguifer* might be either the young or a dwarf state ; but Kurz describes the drupes of the Indian form of *P. furcatus* as very concave at the top, and the typical state as flat or convex at the top ; the very broad barren and more distant spines on the margins and midrib of the leaves of *P. unguifer* are also quite unlike those of *P. furcatus*. I regret not having seen male flowers.

Dr. Thomson and I found this species in Sikkim, from

the Terai up towards Kursiong to about 3000 ft.; and in the Khasia Mountains at Joowye about 4000 ft.; and at Nowgong, and I have seen it plentifully elsewhere in those regions. The drawing here given was made from Sikkim plants sent to Kew by the late Dr. Anderson when superintendent of the Calcutta Botanic Gardens, and which first fruited in July, 1873.

Descr. *Stem* stout, one to three feet long, prostrate, as thick as the thumb. *Leaves* subdistichous, one and a half to two feet long, by one to two broad, curved, keeled, apex in the young plants suddenly, in the older more gradually drawn out into a sharply spinulose tip often two to three inches long; marginal spines distant. *Fruit* as large as the fist; shortly peduncled, subereet; of about one hundred and fifty drupes. *Drupes* two-thirds of an inch long, sides angular, top hemispherical, with an abrupt median nail-like claw a quarter of an inch long, which is acute, 2-toothed or forked at the apex, and is very hard, horny and shining; the drupes are 1-celled and 1-seeded.—*J. D. H.*

Fig. 1, Apex of leaf; 2, a pair of drupes:—*both enlarged.*



1.

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Tab. 6348.

HOODIA Bainii.

Native of South Africa.

Nat. Ord. Asclepiadaceæ.—Tribe Stapelieæ.

Genus Hoodia, *Sweet;* (*Benth. et Hook. f. Gen. Plant.* vol. ii. p. 783; *Dyer in Bot. Mag. sub tab.* 6228 *et in Journ. Linn. Soc.* vol. xv. p. 251.)

Hoodia *Bainii;* cæspitosa, caulibus cactiformibus erectis cinereis tuberculis transversim compressis in spinis fuscis desinentibus et in costas longitudinaliter dispositis crebre tectis, floribus 1–3 summis ramis aggregatis pedunculis pollicaribus, sepalis lanceolato-subulatis, corolla cyathiformi diametro tri-pollicari pallide purpurascente-flavida venosa glabra margine dentibus quinque recurvis, corona exteriore punicea lobis late oblongis obscure bifidis.

This very interesting addition to the Cape Flora was originally brought by Mr. Thomas Bain from Uitkyk, on the road through the Karroo to Beaufort West, in the autumn of 1876, and given to Sir Henry Barkly with flowers preserved in spirit (from one of which the corona in the plate has been drawn). Subsequently Mr. M'Gibbon, the Curator of the Cape Botanic Garden, obtained specimens of the same plant from Mr. Lycett of Worcester, South Africa; and one of these was brought by the former to this country on his recent visit, and presented to the Royal Gardens, where it flowered in July of last year. From this the drawing for the accompanying plate has been made.

Hoodia Bainii is, as Sir Henry Barkly has pointed out to me, undoubtedly closely allied to *H. Barklyi*, from which, however, it seems to differ in its more robust habit, larger flowers, and scarcely bifid corona. I may take this opportunity of putting on record the fact that the plant which afforded the materials for my diagnosis of the latter plant (*Journ. Linn Soc.* vol. xv. p. 252), was also brought from the Karroo in 1873 by Mr. Lycett, and after flowering in the

Cape Botanic Gardens, damped off as these plants are unhappily too apt to do in cultivation; it has apparently not since been found.

Sir H. Barkly informs me that *Hoodia Bainii* is known locally as Wolves' n' Guaap, the name n' Guaap being also given to *Stapelia pilifera*, Thunb.

Descr. *Stems* numerous from the crown, ashy-green in colour, erect, cylindric, leafless, younger portions with closely-set spirally-arranged laterally-compressed tubercles, ultimately confluent into more or less marked prominent longitudinal ridges; tubercles tapering into a stout sometimes deflexed brown prickle. *Flowers* produced near the apex of the branches, 1-3 together; buds acutely pentagonal; pedicels about an inch long. *Calyx* short, five-partite; segments acuminate. *Corolla* about three inches in diameter, pale buff-yellow becoming purplish in decay, cup-shaped, margin with five recurved teeth the apices of the obsolete lobes. *Corona* double; exterior spreading, adnate to the staminal tube by five vertical septa, five-lobed, lobes broadly oblong, concave, obscurely bifid; interior of five narrowly oblong incumbent scales adnate to the septa and the base of the anthers. *Anthers* short, oblong, inappendiculate, incumbent on the stigma, and half immersed in it. *Stigma* flattened at the apex. *Pollen-masses* erect.—*W. T. Thiselton Dyer.*

Fig. 1. Apex of stem with unopened bud, natural size; 2, gynostemium from above; 3, pollen-masses:—*both magnified.*

H.T.D. del.

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Tab. 6349.

JASMINUM DIDYMUM.

Native of tropical Australia and the Pacific Islands.

Nat. Ord. Oleaceæ.—Tribe Jasmineæ.

Genus Jasminum, *Linn.* (*Benth. et Hook. f. Gen. Plant.* vol. ii. p. 674.)

Jasminum *didymum;* frutex alte scandens, glaberrima v. inflorescentia puberula, foliis 3-foliolatis, foliolis petiolulatis late ovatis oblongis v. orbiculatis obtusis rarius ovato-lanceolatis acutis penninerviis v. basi 3-nerviis, cymis in paniculas elongatas axillares et terminales 3-chotome ramosas dispositis, floribus albis breviter pedicellatis, calyce minuto limbo truncato v. obscure denticulato, corollæ tubo gracili, limbi lobis 4–6 brevibus, carpellis maturis solitariis v. didymis ellipsoideo-rotundatis purpureis.

J. didymum, *Forst. Prodr.* p. 3; *DC. Prodr.* vol. viii. p. 311; *Benth. Flor. Austral.* vol. iv. p. 295.

J. divaricatum, *Br. Prodr.* p. 521; *DC. l. c.*; *Labill. Sert. Austr. Caled.* t. 27.

J. parviflorum, *Dene. Herb. Timor,* 77; *DC. l. c.* p. 310.

This very pretty jasmine is a native of tropical and subtropical Australia, and extends into the Pacific, inhabiting Lord Howe's Island, New Caledonia, the Fijis, and Timor; in all these countries frequenting sandy ridges and cliffs, etc., near the sea. It forms a very elegant hothouse climber, with bright green glossy leaves, and pendulous festoons of white flowers, which appear in mid-winter. I have no exact indication of the source from which *J. didymum* was introduced into cultivation, but rather think it was sent to Kew by Mr. Milne, the collector in Captain Denham's surveying voyage to the Pacific about 20 years ago; since which time it has been known in the Palm House at Kew as an old inhabitant.

Descr. A tall woody climber, usually glabrous and shining, but sometimes more or less pubescent, especially on the inflorescence; branches slender, smooth. *Leaves* 3-foliolate, very variable in size and form, with slender petiole and petiolules; leaflets one and a half to three and a half inches

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long, oblong or ovate or orbicular, rarely ovate-lanceolate and acute or acuminate, coriaceous and shining, acute or rounded at the base, usually feather-nerved and also 3-nerved at the base; nerves faint; petiole one quarter to one inch long; petiolules half that length or shorter. *Cymes* scattered along slender panicles which usually much exceed the leaves, and are axillary or terminal on short branches; primary branches long and slender, or short; pedicels very short. *Flowers* half to three-quarters of an inch long, pure white; bracts minute. *Calyx-tube* short, small; limb obscurely toothed or quite entire. *Corolla-tube* slender, slightly dilated upwards; lobes four to six, small, broadly-ovate, obtuse. *Anthers* included, linear-oblong. *Style* narrowly clavate. *Ripe carpels* one or two, shortly stipitate, two-thirds of an inch long, ellipsoid or sub-globose, purple, smooth.

Fig. 1, Vertical section of flowers; 2, calyx and ovary; 3. transverse section of ovary:—*all enlarged.*

H. J. Ford del. et lith.

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Tab. 6350.

RONDELETIA odorata, *var.* breviflora.

Native of the West Indies?

Nat. Ord. Rubiaceæ.—Tribe Rondeletieæ.

Genus Rondeletia, *Linn.* (*Benth. et Hook. f. Gen. Plant.* vol. ii. p. 48.)

Rondeletia *odorata* var. *breviflora;* ramis tomentosis, foliis breviter petiolatis late ovato-oblongis oblongo-rotundatisve obtusis v. subacutis supra scaberulis bullatis opacis, subtus ad costam nervosque puberulis, stipulis late triangularibus cuspidatis, corollæ tubo calycis laciniis linearibus vix duplo longiore, disco tumido tomentoso, glandulis inter lobos calycis minutis v. 0.

The subject of the present plate has been long cultivated at Kew, under the name of *Rondeletia speciosa*, a plant first published in Loddiges' 'Botanical Cabinet,' with a wretched figure, and no botanical description, and which is said closely to resemble Jacquin's violet-scented *R. odorata*, but to differ in not having the slightest scent. Now the plant here figured is scentless, and has much smaller flowers, with a far shorter corolla-tube than either the native Herbarium specimen or the published figure of *R. odorata* and *speciosa*, and must hence be either a new species, or a variety of one or the other of these. After a careful comparison of the published figures of *R. odorata* by Jacquin (Hist. Stirp. Americ. t. 61), and by Lindley in the 'Botanical Register' (tab. 1905), and that by Fitch in the 'Botanical Magazine' (tab. 3953), with those of *R. speciosa* in Loddiges (Bot. Cab. t. 1893), and in Paxton's Magazine (v. ii. t. 242, and v. xvi. t. 354), I cannot doubt these two being the same species, as has indeed been indicated by Lindley. And a further comparison of the Kew plant with all those plates and with Herbarium specimens of *R. odorata*, seems to me to indicate it as only a shorter corollad variety of that same plant. In the 'Botanical Magazine' plate specimens, there appear to have

been large glands on the disk between the bases of the calyx-lobes; these glands I find only occasionally in the Kew plant, and always very minute. The disk itself is densely villous in the Kew plant and pulvinate, as also in all the wild specimens in the Herbarium. The corona of the corolla varies extremely in development and margin, the latter being either quite even and entire, or obscurely and sometimes irregularly notched. The position of the stamens and length of the style all vary much and not quite according to any plan, and I find three stigmas in one flower with a two-celled ovary. It remains to add that the original *R. odorata* of Jacquin is described by him as a native of maritime rocks at Havana (whence Loddiges' *R. speciosa* was obtained), where it forms an inelegant bush, six feet high, with the flowers "smelling most sweetly" of violets, and a usually six-cleft calyx and corolla, though the stamens are invariably five.

DESCR. An erect branching rather slender shrub, the branches and petioles clothed with rather spreading soft pubescence. *Leaves* two to two and a half inches long, very shortly petioled, elliptic-ovate or oblong or rounded, obtuse or subacute, rarely acuminate, above scabrid deep green and raised between the nerves, beneath glabrous except the raised slender nerves and midrib, which are pubescent; petiole one-sixth of an inch long; stipules broadly triangular, with long cuspidate points. *Corymbs* one to two inches in diameter, branched, with rounded or flattened top, branches and short pedicels almost tomentose, bracts linear. *Flowers* vermilion or bright orange-red, with a more yellow eye. *Calyx-tube* obovoid; lobes linear, obtuse, more than half the length of the corolla-tube; erect, spreading after flowering. *Corolla-tube* a quarter of an inch long, slightly dilated upwards, velvety externally; limb nearly half an inch in diameter; crown at the mouth raised or not entire or crenate or obscurely notched. *Stamens* midway in the tube in one form of flower, much higher up and even exerted in others. *Disc* tumid, tomentose. *Style* stout, hairy towards the base, very variable in length, stigma two-lobed.—*J. D. H.*

Fig. 1, Flowers cut vertically :—*enlarged*.

H.T.D del. J.N.Fitch Lith

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Tab. 6351.

PTEROSTYLIS BAPTISTII.

Native of New South Wales.

Nat. Ord. Orchideæ.—Tribe Neottieæ.

Genus Pterostylis, *Br.* (*Benth. Flor. Austral.* vol. vi. p. 352.)

Pterostylis *Baptistii;* foliis radicalibus subrosulatis lanceolatis acuminatis supra nitidis infimis petiolatis, caulinis in vaginas spathaceas caudato-acuminatas sensim desinentibus, scapo unifloro, flore magno erecto, galea oblonga lente curva virescente apicibus foliolorum acuminatis fusco-purpurascentibus, sepalis lateralibus basi in laminam late cuneatam erectam convexam connatis, lobis late ovatis in caudas elongatas filiformes galeam amplectentes attenuatis, labello lineari medio carinato apice repente angustato appendice basilari penicillato.

P. Baptistii, *Fitzgerald, Austral. Orchid.* part 1, with a plate.

The terrestrial Orchids of Australia, though celebrated both for their beauty and singularity, have rarely been flowered in this country, and more rarely kept after flowering. Amongst those who have achieved success in the culture of one kind at least is Mr. Williams, of the Victoria and Paradise Nurseries, who, in January last, flowered a large stock of the very remarkable species here described. It is the sixth of the genus that has been figured in this work, the others being, *P. nutans*, tab. 3085, *P. curta*, tab. 3086, *P. Banksii*, tab. 3172, *P. concinna*, tab. 3400, and *P. acuminata*, tab. 3401. These all flowered at Kew, but none were kept long in cultivation, though to have kept them ought not to have been difficult, for I have myself seen a pan full of one of them at Herrenhausen, which Mr. Wendland told me he had had for years, and that when simply let alone they flowered annually. Cultivators may take a hint from the notes on the genus in Mr. Fitzgerald's splendid folio work on Australian Orchids, where, under the genus, he states that these Orchids are usually found in groups; "the grouping being accounted for by their forming frequently bulbs on the leading roots, in addition to the annual bulb formed near the plant to replace the bulb of the year. In proportion as this habit is frequent

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in a species, that species will be found common or the reverse. The production of extra bulbs is favoured by the plant being situated, as often is the case, in light leaf mould on the top of a rock. In this position the waxy filamentous roots extend a long distance on the surface of the stone beneath the loose dead leaves and sticks, and protruding here and there into the light, form new bulbs. From such situations the bulbs are often swept by heavy rains, as they are also, by the upcasting of ants, exposed to removal from the fine sandy soil in which they grow, and by the burrowing of bandicoots. Bulbs thus transported vegetate again, though frequently left on the surface uncovered, and a species may in consequence often be traced for a long distance through 'tea-tree' slopes and down gullies."

The sensitiveness of the lip in this genus is a phenomenon I have often watched in Tasmania, when I had no idea of its significance, which has been inferred from Mr. Darwin's observations on other Orchids, and tested by Mr. Fitzgerald. In repose the lip hangs forward against the cleft between the united lateral sepals, but on being irritated at its base, it springs up and becomes embraced, as it were, by the projecting wings of the column, and is thus brought almost in contact with the anther. An insect entering or falling into the base of the flower irritates the lip, which catches it between its face and the column, and in its struggle to escape the insect passes upwards over the stigma, and sweeps away the pollen masses. These it may take to other flowers, when the same process results in a portion of the pollen being retained on the stigma. Mr. Fitzgerald, who observed the process on a many-flowered species of the genus, remarks that notwithstanding the complexity of the arrangement, very few flowers comparatively seemed to be fertilized.

P. Baptistii is a native of the neighbourhood of Sydney, where it was found in a "tea-tree" swamp by Mr. Baptist, and transferred by him to his Nursery Gardens.

DESCR. *Stem* one to two feet high, strict, slender, 1-flowered. *Radical leaves* three to six inches long, somewhat rosulate, petioled, lanceolate, acuminate, shining above, the lowest shorter and more ovate and acute or obtuse, the upper passing into sheathing spathaceous bracts with long points. *Flowers* erect, two inches long, green, with the tips of the

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Tab. 6352.

XIPHION planifolium.

Native of Algiers and South Europe.

Nat. Ord. Iridaceæ.—Tribe Irideæ.

Genus Xiphion, *Tournef.* (*Baker in Journ. Linn. Soc.* vol. xvi. p. 122.)

Xiphion (*Juno*) *planifolium ;* bulbo magno ovoideo, tunicis brunneis membranaceis, foliis productis 5–6 lanceolatis suberectis acuminatis, spathæ sessilis sæpissime unifloris valvis magnis lanceolatis, perianthii lilacini tubo 2–4-pollicari, limbi segmentis exterioribus oblongo-cuneatis obtusis 2–3 poll. longis supra medium falcatis infra medium aurantiaco-carinatis segmentis interioribus multo minoribus patulis oblanceolatis unguiculatis, stigmatibus magnis perianthii segmentis exterioribus subæquilongis, capsula oblonga in centro foliorum sessili, seminibus globosis testa brunnea.

X. planifolium, *Miller in Gard. Dict. edit.* vi.; *Baker in Journ. Linn. Soc.* vol. xvi. p. 123.

Iris alata, *Poiret, Voy. Barb.* vol. ii. p. 86 ; *Bot. Reg.* t. 1876.

I. scorpioides, *Desf. Fl. Atlant.* vol. i. p. 40, t. 6 ; *Red. Lil.* t. 211.

I. transtagana, *Brotero, Fl. Lusit.* vol. i. p. 52.

I. trialata, *Brotero, Phyt. Lusit.* vol. ii. p. 44, t. 95.

I. microptera, *Vahl, Enum.* vol. ii. p. 142.

This is a most peculiar and unique Irid. It has very large generally single delicate lilac flowers, that rise without any stem from the centre of a number of leaves, the showy part of the flower being made up of the large stigmas and large outer segments of the perianth, the three inner segments being very small and spreading from the top of the long perianth-tube. It is widely spread through the south of Europe, extending from Portugal to Sicily, and reappearing across the Mediterranean. As it flowers from September to January, it can only be satisfactorily grown in England under cover, and lately it has been imported and sold in considerable quantity to be grown in coloured glasses on mantelpieces and in windows, like hyacinths. It has been

known to botanists for the last two hundred years, and there is perhaps hardly any other bulbous plant that has received so many different names, as it has had six different specific names, and the small group of bulbous Irises to which it belongs has been characterised as a genus five times by as many different authorities. The specimen drawn was flowered at Kew at the end of last December, and was received from Mr. T. S. Ware, of Tottenham.

Descr. *Bulb* ovoid, one or two inches in diameter, with brown membranous tunics and a tuft of four or five fleshy cylindrical white root-fibres. Produced *leaves* five or six, contemporary with the flowers, lanceolate, acuminate, suberect, about half a foot long, narrowed from near the base gradually to the point, moderately firm in texture. *Stem* none above the soil, so that the usually one-flowered spathe is sessile in the centre of the rosette of leaves. Spathe *valves* lanceolate, membranous, two to four inches long. *Perianth* delicate lilac with darker blotches; tube cylindrical, three to six inches long; outer segments of the limb obovate-cuneate, two or three inches long, reflexing considerably above the middle, keeled with bright yellow, not bearded; inner segments of the limb about an inch long, oblanceolate unguiculate, spreading from the top of the tube. *Stigmas* with their large dimidiate-oblong toothed crests nearly as long as the outer segments of the perianth. *Anthers* yellowish, about as long as the free filaments. *Capsule* oblong, sessile like that of *Colchicum* on the surface of the soil in the centre of the leaves. *Seeds* brown, as large as a pea.—*J. G. Baker.*

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Tab. 6353.

DENDROSERIS MACROPHYLLA.

Native of Juan Fernandez.

Nat. Ord. Compositæ.—Tribe Cichoriaceæ.

Genus Dendroseris, *Don*; (*Benth. et Hook. f. Gen. Plant.* vol. ii. p. 504.)

Dendroseris *macrophylla*; arbor humilis, glaberrima, trunco nudo apice monocephalo, foliis amplis petiolatis oblongis oblongo-rotundatisve obtusis v. subacutis sinuato-lobatis basi cordatis rotundatisve, summis auriculato-amplexicaulibus integerrimis, panicula laxa nutante, pedunculis bracteatis, capitulis 3 poll. diametr. involucri urceolato-campanulati bracteis herbaceis exterioribus ovatis acutis interioribus linearibus acuminatis.

D. macrophylla, *Don in Phil. Mag.* 1832, p. 388; *Hook. et Arn. in Comp. Bot. Mag.* vol. i. p. 32.

Rea macrantha; *Bertero ex Dene. in Guill. Archiv. de Bot.* vol. i. p. 514, t. ix. f. a. et t. x; *DC. Prod.* vol. vii. p. 243.

The island of Juan Fernandez is famous for its tree Compositæ, of which there are about a dozen species, belonging to the genera *Dendroseris* and *Robinsonia*, the latter one of the tribe *Senecionidæ*. In this predominance of tree Compositæ it resembles the Galapago Islands, lying much further north, and under the equator, as also New Zealand, on the other side of the Pacific, and St. Helena, in the Atlantic Ocean. In the Indian Ocean, on the other hand, in the Mauritius and Seychelles, there are no arborescent *Compositæ*, nor are there in the Oceanic Islands of the northern hemisphere.

The genus *Dendroseris* is confined to Juan Fernandez group of Islands, and the present species inhabits both the principal island and Masafuera, where it was discovered by Bertero in 1830, growing on the mountains, and flowering in May. The *D. macrophylla* was imported by Messrs. Veitch, through their collector Mr. Downton, the discoverer of the beautiful

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Wahlenbergia tuberosa, figured at tab. 6155 of this volume, and it flowered at their nursery in August, 1877.

Descr. A small tree, ten to thirteen feet high, with an erect slender simple or forked weak cylindrical naked scarred trunk, usually terminated by a single tuft of leaves, and panicle of flowers. *Leaves* often a foot long, long-petioled, oblong or rounded, obtusely sinuate-toothed or lobed, rounded or cordate and auricled at the base, nerves spreading; petiole stout, three to six inches long, semiamplexicaul; uppermost leaves smaller, sessile, deeply cordate and amplexicaul, with broad auricles. *Panicle* leafy below, loose, open, decurved, six to eight inches long; peduncles stout, spreading, and pedicels bracteate throughout their length; the bracts small, ovate, acute. *Heads* very large, two and a half inches in diameter, bright orange-yellow. *Involucre* one and a half inches long, between urceolate and campanulate, truncate at the base; bracts very numerous, herbaceous, outer ovate, acute, inner linear, acuminate. *Florets* excessively numerous, quite glabrous; ligule narrow, minutely 5-toothed at the tip; stamens slender, style and its arms very slender. *Achene* (immature) obovoid, quite glabrous; pappus short, rufous, rigid.—*J. D. H.*

Fig. 1. Reduced view of entire plant of the natural size; 2, floret *enlarged*.

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Tab. 6354.

SPATHOGLOTTIS Petri.

Native of the Pacific Islands.

Nat. Ord. Orchideæ.—Tribe Epidendreæ.

Genus Spathoglottis, *Blume;* (*Reichb. f. in Walp. Ann.* vol. vi. p. 455.)

Spathoglottis *Petri;* pseudobulbis 1½-poll-diam., foliis pedalibus anguste lanceolatis longe acuminatis, scapo gracili superne pubescente, vaginis appressis, bracteis rhombeo-ovatis acutis caducis, pedicellis gracilibus ovarioque pubescentibus, floribus læte pallide lilacinis 2-poll diametr., sepalis ovato-oblongis acutis, petalis æquilongis sed latioribus fere rotundatis obtusis v. apiculatis, labello parvo, lobis lateralibus oblongis, terminali transverse oblongo apiculato medio costato, disco callo late cordato pubescente ochroleuco instructo.

S. Petri, *Reichb. f. in Gard. Chron.* 1877, pars. 2, p. 392.

I assume that this fine plant, which was received from Messrs. Veitch about the time of the publication of *S. Petri* by Reichenbach, to be the plant of that learned orchidologist, though it differs from his description in the lax and few-flowered raceme. It is a native of the South Sea Islands, from where it was introduced by Mr. Peter Veitch. Though there are several Pacific Island species of the genus in the Herbarium, I find that none agrees with this in the very marked character of the deciduous bracts; these organs in the New Caledonian, Fijian, Malayan Archipelago, and Indian species being remarkably persistent, even long after the ripening of the fruit.

The genus *Spathoglottis* is a very beautiful one, but the species are not kept long in cultivation, doubtless from being over stimulated by heat and moisture throughout the year. The *S. Khasiana*, which I have seen wild in India, grows amongst moss in a thin layer of soil on rocks, and its pseudobulbs get well ripened during the drier cool season of the year. I imagine that the species would do well if treated more like *Pleiones*. There are superb species still to be intro-

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duced from the Malayan peninsula, which is now being opened up to travellers, and is still one of the richest, as it is the most accessible, field for tropical horticultural novelties.

DESCR. *Pseudobulbs* as large as and of the shape of a small onion. *Leaves* tufted, a foot long, narrowly lanceolate, gradually finely acuminate, plaited with about twelve nerves. *Scape* slender, rather exceeding the leaves, glabrous below, pubescent above; sheaths appressed. *Raceme* subcorymbose; bracts deciduous, rhombic-ovate, acute; pedicels and ovary pubescent, together one inch long and upwards, red. *Flowers* one and a half inch in diameter, pale lilac, or rose-lilac. *Sepals* oblong-ovate, subacute. *Petals* broader than the sepals, almost orbicular, obtuse and apiculate. *Lip* about half the size of the petals; lateral lobes oblong, obtuse, incurved, darker purple within; terminal lobe transversely oblong, apiculate, pale blue, like the petals; disk with one obtuse ridge down the centre, and between the lateral lobes is a heart-shaped villous yellow callus. *Column* slender, purple.—*J. D. H.*

Fig. 1, Flower, with sepals and petals removed; 2, column; 3, lip:—*all enlarged*.

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Tab. 6355.

ISCHARUM ANGUSTATUM.

Native of Syria.

Nat. Ord. Aroideæ.—Tribe Dracunculeæ.

Genus Ischarum, *Blume;* (*Schott, Prodr. Syst. Aroid.* p. 65).

Ischarum *angustatum* ; foliis longe crasse petiolatis oblongo-lanceolatis subacutis, spathæ tubo oblongo modice inflato in laminam anguste lineari-oblongam v. loriformem acuminatam saturate purpuream vix angustato, spadicis parte fœminea brevi, organis neutris subulatis sparsis, antherarum spica pollicari, appendice gracillimo atro-purpureo spatha breviore, ovariis confertis, stylo brevi adscendente apice recurvo.

The various groups of *Aroideæ* are pretty well restricted in geographical distribution, and of these the subtribe of *Dracunculeæ*, to which *Ischarum* belongs, is all but confined to the Mediterranean region, where it increases in numbers to the eastward. In Syria and Palestine the species are very common, growing in the dry open ground, where they flower in the autumn rains, and leaf in the following early spring. The species here figured was found by myself in Syria in 1860, but I cannot tell exactly where, for the tubers were collected in September without flowers, and put in a bag with many other roots that I dug up as I journeyed along, and to whose generic name even I had then no clue. It flowered at the Royal Garden first in December, 1861, and formed its leaves in the following January in a cool frame. I fail to identify it with any described species, and I find nothing like it in the Herbarium. Another species of the genus, which I had also brought from Syria, is figured at t. 5324, under the name of *I. Pyrami*, Schott, which is, however, a doubtful identification.

Descr. *Tuber* the size of a small potato, a depressed sphere. *Sheaths* embracing the base and middle of the spathe

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one to two inches long, oblong, subacute, white, membranous, tips slightly recurved. *Spathe* six inches long; sheathing part oblong, slightly tumid, about 1 inch long, pale, nearly white, quite closed, gradually expanding into a narrowly linear-oblong, subacute, or almost strap-shaped erect blade, which is two-thirds of an inch broad, glossy and deep almost black-purple, concave below, and almost flat above, pale on the back. *Spadix* very slender; female portion very short; neutral part one half inch long, white, with horizontal scattered curved subulate neutral organs. Male part one inch long; appendix four inches long, erect, very slender, black-purple, gradually narrowed from the base to a fine point. *Stamens* crowded, filament very short; anthers obtuse, with vertical transverse dehiscence. *Ovaries* densely crowded, purple, with a short erect sigmoid style which is decurved and stigmatiferous at the tip; ovule one, basal, orthotropous.—*J. D. H.*

Fig. 1, Spadix of the natural size; 2, lower portion of the same; 3 and 4, anthers; 5, ovary; 6, the same cut opened longitudinally, showing the ovule:—*all enlarged.*

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TAB. 6356.

FEVILLEA MOOREI.

Native of Guiana?

Nat. Ord. CUCURBITACEÆ.—Tribe FEVILLEÆ.

Genus FEVILLEA, *Linn.* (*Benth. et Hook. f. Gen. Plant.* vol. i. p. 840).

FEVILLEA *Moorei;* glaberrima, foliis ovatis longe acuminatis basi rotundatis trinerviis membranaceis reticulatis lucidis, cirrhis 2-fidis, racemis multifloris, bracteolis parvulis, floribus masculis amplis lateritiis, calycis laciniis oblongis obtusis, corollæ lobis rotundatis, staminodiis staminibus oppositis corollæ adnatis oblongis obtusis basi connatis, staminibus brevibus recurvis, antheris subglobosis 1-locularibus, connectivo crasso.

I received this plant in 1871 from Dr. Moore, of Glasnevin, who had obtained it from Mr. Tyreman, of the Liverpool Botanic Garden, some years previously, under the name of "*Strychnos Curari*," and as being a reputed native of the Gambia, in Western Africa. Now, in so far as is known, all the species of *Fevillea* are indigenous only in the West Indies and South America; and the name ascribed to this of *Strychna Curari* (which I find in no botanical work) points to this having been supposed to be the plant producing the famous Curari Wourari or Woorali poison, namely *Strychnis toxifera*, Benth., a native of Guiana and the Amazon river, and which hence render it probable that America is the native country of the present plant. On the other hand, various genera otherwise confined to tropical Eastern America, have solitary species in Western Africa; so that this may be an old world representative of a new world genus.

Fevillea Moorei differ from the other species known to me, in its being quite glabrous, having entire 3-nerved leaves, and very large flowers with short staminodes; the leaves are obscurely biglandular at the base on the margin close to the

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petiole. The male flowers alone are known, which are very deciduous, the pedicel being jointed in the middle. I have named after my friend Dr. Moore, F.L.S., whose eminence as a scientific horticulturist is as well known as his garden is appreciated for botanical interest and beauty.

Descr. A slender, quite glabrous climber. *Leaves* alternate, membranous, three to five inches long, shining, broadly ovate, long acuminate, rounded at the base, where are two marginal glands, soft, 3-nerved from the base, much reticulated; petiole one inch long. Tendrils very slender, forked. *Racemes* copious, four to five inches long, many flowered; bracteoles minute. *Flowers* (males only known) one inch in diameter, pale brick red; pedicel slender, jointed in the middle. *Calyx* divisions oblong, obtuse, green. *Corolla-lobes* orbicular, or broader towards the rounded apex, margins undulate. *Staminodes* short, linear oblong, obtuse, opposite the stamens, adnate to the corolla and connate at the base into a bright golden yellow disk, on which the stamens are placed. *Stamens* with stout recurved filaments, a very thick connective, and small adnate 1-celled, 2-valved anthers.—*J. D. H.*

Fig. 1, Flower with the corolla removed; 2, stamen:—*both enlarged.*

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Tab. 6357.

ARDISIA Oliveri.

Native of Costa Rica.

Nat. Ord. Myrsineæ.—Tribe Eumyrsineæ.

Genus Myrsine, *Swartz*; (*Benth. et Hook. f. Gen. Plant.* vol. ii. p. 645).

Myrsine *Oliveri*; fruticosa, glaberrima, foliis decurvis breviter petiolatis oblanceolatis acuminatis in petiolum longe angustatis obscure dentatis glandulis immersis transverse oblongis creberrime notatis, corymbis in capitulum amplum terminalem densiflorum subglobosum aggregatis, floribus roseis pedicellatis ½ poll. diametr., bracteis oblongis, calycis lobis ovatis obtusis v. erosis, corollæ lobis ovato-rotundatis subacutis, filamentis brevissimis hirtellis, antheris ovato-lanceolatis apice 2-porosis.

Ardisia Oliveri, *Masters in Gard. Chron.* 1877, *pars* 2, p. 680.

By far the handsomest species of the genus hitherto cultivated in England, introduced by M. Endress into Messrs. Veitch's nursery, where it flowered for the first time in July, 1876. Dr. Masters, who has fully described it in the 'Gardeners' Chronicle,' considers its anthers as opening by one pore, but I find an evident septum at the orifice; he further states that the species is not referable to any of the sections of the genus which I have established in the Genera Plantarum, a remark which is founded on a misconception, as I have established no sections of the genus, though I diligently attempted to do so. In fact, *Ardisia* is one of the few very large genera (it contains about 200 species) which is common to all three continents, and in which I have in vain sought for sectional characters.

Descr. A robust green shrub, everywhere quite glabrous, with bright green branches and foliage. *Leaves* shortly stoutly petioled, reflexed, five to seven inches long, oblanceolate, acuminate, narrowed into the petiole, obscurely toothed, many-nerved, rather membranous. Midrib thick; glands excessively numerous, linear-oblong, brown disposed transversely.

Inflorescence of numerous peduncled corymbs, disposed in a large terminal dense head four to five inches in diameter; peduncles and pedicels of a fine red-purple colour; bracts oblong, caducous. *Flowers* over half an inch in diameter; of a fine rose purple colour with a white eye and golden yellow anthers. *Calyx* campanulate; lobes ovate, obtuse or erose at the apex, marked with linear glands. *Corolla-lobes* orbicular-ovate, subacute, also marked with linear glands. *Stamens* declinate, filament very short, pubescent at the base; anthers curved, ovate-lanceolate, opening by two pores at the summit. *Ovary* glabrous; style rather short, subulate.—*J. D. H.*

Fig. 1, Flower; 2, calyx; 3, stamen; 4, ovary:—*all enlarged.*

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Tab. 6358.

LOXOCOCCUS RUPICOLA.

Native of Ceylon.

Nat. Ord. Palmeæ.—Tribe Arecineæ.

Genus Loxococcus, (*Wendl. et Drude in Linnæa*, vol. xxxix. p. 185.)

Loxococcus *rupicola;* Wendl. and Drude, l.c.

Ptychosperma rupicola, *Thwaites Enum. Pl. Zeyl.* p. 328.

Caryota mitis, *Willd.? Moon. Cat. Pl. Ceylon*, p. 65.

This elegant palm is a native of rocky places in forests of the southern and central parts of Ceylon, from whence seeds were sent to Kew by our excellent friend Dr. Thwaites, F.R.S., Director of the beautiful Botanical Gardens of the Island. Dr. Thwaites describes it as attaining the height of thirty to forty feet, and adds that the seeds are chewed by the Cinghalese with their betel as a substitute for those of *Areca Catechu*. It flowered for the first time in the Victoria House at Kew in February of this year, and from its graceful habit and its coral-like inflorescence, it was a most attractive object.

Whilst adopting for the present the genus *Loxococcus*, I am far from thinking that it will stand the test of a revision of the tribe *Arecinæ* under a very different view of the value of generic characters from that adopted by its authors, which tends to raise so many closely allied species to individually generic rank. As, however, such generic names will for a time be current amongst cultivators, and I have not the time to revise them, with a view to forming a definite opinion of their relative value, I think it best, in this instance, to adopt *Loxococcus*.

Descr. *Trunk*, in our specimen, about eight feet high, conical, and swollen at the base, where it is four inches in

diameter, rather stout, two inches in diameter above, ringed, otherwise smooth, dull green. *Leaves* about ten, spreading, five to six feet long, and three to four broad, pinnate; petiole one to one and a half feet long, stout, with a green smooth shortly amplexicaul base; pinnules twelve to twenty pair, rather distant, spreading and somewhat recurved, two feet long by two and a half inches broad, sessile, linear, very obliquely truncate and notched at the tip, one-nerved, bright green, glaucous beneath, with scattered furfuraceous scales, young connate. *Spathe* a foot long, narrowly cymbiform, very coriaceous, pale yellow brown when dry, dotted with furfuraceous peltate rufous scales. *Spadix* lateral from the trunk below the leaves, dark blood-red, a foot long, triangular in circumscription of the panicled branches, which are erecto-patent, quite smooth and glabrous; peduncle short, stout, annulate; branches like pieces of red coral. *Flowers* sessile, blood-red, spirally arranged around the branches of the spadix; males about half an inch in diameter, in pairs towards the upper part of the branches; females solitary between two males in the lower part; bracteoles very short, broad, adnate to the branch; outer perianth segments rounded; inner ovate, acute, paler within. *Stamens* about twelve, filaments stout, subacute, equalling the linear anthers; rudimentary ovary minute, with three distant stigmas. FEMALE FLOWER ovoid, with appressed perianth segments. *Ovary* obliquely shortly ovoid; stigmas three, minute; ovule solitary, obliquely pendulous. *Drupe* size of a large nut, almost globose, narrowed suddenly into a straight rather long point, fibrous within. *Seed* globose, albumen ruminated, with red markings; embryo small, lateral towards the base of the seed.—*J. D. H.*

Fig. 1, Male, and 2, female flowers; 3, vertical, and 4, transverse section of ovary; 5, drupe; 6, seed; 7, vertical section of ditto:—*all but* 6 and 7 *enlaryed.*

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Tab. 6359.

ACOKANTHERA spectabilis.

Native of South Africa.

Nat. Ord. Apocyneæ.—Tribe Carisseæ.

Genus Acokanthera, *Don;* (*Benth. et Hook. f. Gen. Plant*, vol. ii. p. 696.)

Acokanthera *spectabilis;* foliis breviter petiolatis oblongo-v. elliptico-lanceolatis acutis v. acuminatis integerrimis coriaceis nervis indistinctis, racemis axillaribus et subterminalibus multifloris, calycis lobis ovato-lanceolatis subacutis pilosulis, corollæ tubo $\frac{3}{4}$-pollicari, lobis ovato-lanceolatis subacutis.

A. spectabilis, *Benth. in Gen. Plant*, vol. ii. p. 696.

Toxicophlæa spectabilis, *Sonder in Linnæa*, vol. xxiii. p. 79; *Walp. Ann.* vol. iii. p. 32; *Masters in Gard. Chron.* 1872, p. 363 *cum Ic. Xylog.* f. 122.

The genus *Acokanthera* was founded by G. Don in the 'Gardeners' Dictionary' (vol. iv. p. 485) on Thunberg's *Cestrum venenatum* (and other South African plants having no relation thereto), a native of Western South Africa. Subsequently, Harvey, overlooking Don's genus, established *Toxicophlæa* on the same *Cestrum venenatum*, and his name is taken up by A. De Candolle in the Prodromus, and has consequently been current for that plant ever since; subsequently, a congener was found in Abyssinia, the *Carissa Schimperi*, A.D.C. (*C. Mepte*, Hochst., and *Strychnos abyssinica*, Hochst.), and finally, the present plant was sent from South East Africa, and first published as *Toxicophlæa spectabilis* by Sonder. The three known species are probably all of them very poisonous. *A. venenata* (*Toxicophlæa Thunbergii*), Harvey, is the "Gift-boom," or poison-tree of the Dutch and English colonists. According to Thunberg, a decoction of the bark reduced to a jelly was used by the Aborigines for poisoning their arrows; and of the *A. spectabilis*, Mrs. Barber writes that the seeds are intensely bitter, and the whole plant considered by the natives to be a deadly poisonous one. The genus is, as Mr. Dyer has remarked (Gard. Chron. l.c.), too closely

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allied to *Carissa*, differing chiefly, if not solely, in the want of thorns.

A. spectabilis is a native of the Western districts of South Africa, from Albany to Port Natal, where it forms a large shrub, with masses of white very fragrant flowers, on woody sand-hills near the sea. It was introduced by Mr. B. S. Williams, and exhibited by him in 1872. Our specimen flowered at Kew in February of the present year.

Descr. A large shrub, quite glabrous, except the inflorescence, which is slightly hairy or almost glabrous; branches stout, green, obscurely angled. *Leaves* three to five inches long, narrowed into a very short thick petiole, coriaceous, elliptic- or oblong-lanceolate, acute, acuminate, or apiculate, shining above with very obscure spreading nerves, paler and opaque beneath. *Flowers* in dense fascicled axillary branched short cymes, sometimes forming a globose head towards the top of the branch, pure white, very sweet-scented; peduncles and pedicels very short; bracts minute, broadly ovate. *Calyx-lobes* ovate-lanceolate, green, subacute, hairy. *Corolla-tube* three-quarters of an inch long, slender, slightly enlarged upwards, sparsely hairy in the throat; lobes spreading, ovate-oblong, acute. *Stamens* included, inserted near the mouth of the corolla, filaments very short; anthers broadly ovate, with a pubescent terminal claw. *Stigma* conical, hairy, emarginate. *Ovules* attached towards the base of the septum.—*J. D. H.*

Fig. 1, Flower; 2, calyx; 3, vertical, and 4, transverse section of ovary; 5, top of style and stigma; 6, stamens:—*all enlarged.*

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Tab. 6360.

AMBROSINIA Bassii.

Native of Southern Italy and Algiers.

Nat. Ord. Aroideæ.—Tribe Alleluchieæ.

Genus Ambrosinia, *Bassi*; (*Schott, Prodr. Syst. Aroid.* p. 19).

Ambrosinia *Bassii, Linn. Syst. Veg*, p. 689. *Blume, Rumphi*, vol. i. p. 81, t. 36. *Cesati in Linnæa*, vol. xi. p. 281, t. 5. *Kunth Enum. Pl.* vol. iii. p. 10. *Bivoni, Stirp. Rar. Sic. Manip.* vol. iii. p. 9. *Gussoni, Syn. Flor. Sic.* vol. ii. pars 2, p. 594. *Bertol. Fl. Ital.* vol. x. p. 252. *Parlat. Fl. Ital.* vol. ii. p. 231.

For the opportunity of figuring this singular and interesting little Aroid, I am indebted to Mrs. Grant Duff, who accompanied her husband, Mr. E. Grant Duff, M.P., F.L.S., of York House, Twickenham, to Algeria, in the winter of this year, and brought living plants, which she presented to the Royal Gardens, and which being in bud, flowered in February. It is one of the most curious of European plants, presenting with something of the habit of *Asarum*, a floral economy in many respects resembling that of some of the terrestrial orchids. Thus the tail of the spathe resembles that of the sepals of a *Masdevallia*, and the tongue-shaped spadix as seen in the section of the inflorescence (fig. 2), with its pappillose upper surface next the ovary, and its anthers on the under surface behind its recurved tip, in its position towards the ovary recalls the lip of many genera of Orchids, notably of *Pterostylis*. This arrangement, which precludes the possibility of the pollen reaching the stigma without aid, is no doubt intended to facilitate cross-fertilization by insects, a process which, in so far as I am aware, has never been enquired into in this genus. The geographical range of *Ambrosinia*

Bassii, is very limited; Parlatore gives Sicily and Calabria on grassy hills, Sardinia, the Isles of Lampedusa and Linosa, to which is added Algeria, where it is probably not uncommon, as we have seen dried specimens from various sources.

Descr. *Roots* of stout fibres from an oblong tuberous subterranean rhizome the size of a nut, which is white and floury within. *Leaves* two to three from the rhizome, long-petioled, two to three inches long, membranous, oblong, rounded at both ends, emarginate, pale-green, with a midrib, and few very oblique almost longitudinal nerves, connected by reticulate venation; base sometimes cordate; margin quite entire and even or beautifully crisped; petiole one to two inches long. *Spathe* three quarters of an inch long, on a short decurved peduncle, broadly ovoid, convolute and closed except for an ovoid opening towards the top, suddenly contracted into a stout filiform recurved brown tail as long as the bud, green mottled with lurid purple within and without. *Spadix* entirely included, adnate to the posterior inner surface of the spathe, and one third shorter than it, flattened transversely and stretching across the cavity of the spathe, thus dividing the latter two-thirds of its (the cavity) length into an upper and lower chamber; tip of spadix truncate, with a recurved median purple subulate appendage, that points downwards in the lower chamber; upper surface studded with elongate papillæ, lower antheriferous. *Ovary* solitary in the base of the spathe at the insertion of the spadix, globose or flagon-shaped, one-cellled; style short, stout, decurved, stigma peltate; ovules numerous on a free central tumid placenta, straight, narrow, orthotropous, with thick erect funicles; apex truncate. *Anthers* eight to ten, in two rows along the mesial line of the spadix, 2-celled, (or sixteen to twenty, and one-celled) yellow, sessile; cells divaricating.—*J. D. H.*

Fig. 1, Plant of *nat. size*; 2, longitudinal section of spathe and spadix; 3, dorsal view of spathe cut open, so as to show the antheriferous under surface of the spadix; 4, vertical section of ovary, base of spathe, and tip of peduncle; 5, ovule:—*all enlarged.*

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Tab. 6361.

GREVILLEA ericifolia.

Native of East and South Australia.

Nat. Ord. Proteaceæ.—Tribe Grevilleeæ.

Genus Grevillea, *Br.* (*Benth. Flor. Austral.* vol. iv. p. 417).

Grevillea (Ptychocarpa) *ericifolia;* frutex gracilis ramosus diffusus v. suberectus, ramulis foliisque pilosis v. pubescentibus, foliis sessilibus patulis linearibus acuminatis rigidis v. flaccidis longe acuminatis marginibus recurvis, racemis terminalibus brevibus paucifloris pedunculatis decurvis v. pendulis, pedicellis gracilibus, perianthii glabri intus barbati tubo $\frac{1}{3}$ poll. longo brevi late gibbo infra limbum revolutum obliquum constricto, toro erecto, glandula lata semicirculari, ovario sessile dense villoso, stylo crasso elongato, stigmate laterali.

G. ericifolia, *Br. Prot. Nov. Holl.* p. 20. *Meissn. in DC. Prodr.* vol. xiv. p. 365. *Benth. Fl. Austral.* vol. v. p. 444.

G. Latrobei, *Meissn. in Plant. Preiss.* vol. i. p. 539, *et in DC.* l. c. p. 364.

This and the equally beautiful little *Grevillea Thelemanniana*, Endl. (*G. Preissii.* Meissn. Tab. nostr. 5837), have proved very attractive ornaments both in the conservatory and temperate house of Kew for some years past, forming neat pot plants, flowering in midwinter, and remaining for several weeks in flower. They are examples of a vast number of beautiful and interesting greenhouse plants still to be introduced into cultivation from Australia, whose once prized relatives have been elbowed out of cultivation by "soft-wooded" greenhouse plants of greater show but less grace and interest. Of the genus *Grevillea* alone there are upwards of one hundred and fifty species, amongst which are some of great beauty.

G. ericifolia was raised from seeds sent by our indefatigable correspondent Baron Von Mueller, F.R.S., of whom it is not too much to say that he is the greatest Colonial Botanist that has ever lived, alike eminent as a traveller, a

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collector, and a describer of the vegetable products of his adopted continent; it has a wide range in Australia, from the interior of New South Wales to Melbourne and Port Phillip.

Descr. A small shrub, with a stout woody stock, and numerous spreading slender leafy branches, all parts more or less pubescent, hairy, or even tomentose. *Leaves* scattered, three-quarters to one and a quarter inch long, sessile, spreading, linear or linear-subulate, long accuminate, with recurved margins, strict or rather flexuose, sometimes almost acicular rigid and pungent, pale green. *Racemes* terminal and on short lateral shoots, few flowered, peduncled, recurved or pendulous; peduncle one half-inch long, slender; pedicels one quarter-inch long, spreading. *Perianth* bright red, half to three-quarters inch long; tube short, very gibbous, truncate at the base, suddenly contracted below the strongly recurved short oblique limb, which has very short segments, within tomentose below the middle. *Torus* straight; gland thick, semicircular. *Ovary* sessile, villous on one side; style very long and stout; *stigma* lateral.—*J. D. H.*

Fig. 1, Flower; 2, the same with the perianth laid open; 3, vertical, and 4, transverse section of ovary; 5 and 6, leaves:—*all enlarged.*

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Tab. 6362.

CROCUS etruscus.

Native of Italy.

Nat. Ord. Iridaceæ.—Tribe Ixieæ.

Genus Crocus, *Tournef.* (*Baker in Journ. Linn. Soc.* vol. xvi. p. 79.)

Crocus *etruscus*; cormo globoso, tunicis exterioribus fibris crassis reticulatis, foliis 2–6 synanthiis anguste linearibus albo-vittatis marginibus revolutis, spathâ basali nulla, spathâ propria monophylla, perianthii tubo segmentis duplo longiori, fauce glabro luteo, segmentis oblongis obtusis intus lilacinis, exterioribus dorso pallidioribus fasciis 5 lilacinis plumosis percursis, interioribus basi solum vittatis, staminibus luteis, stigmatibus aurantiacis indivisis.

C. etruscus, *Parl. Fl. Ital.* vol. iii. p. 228; *Baker in Gard. Chron.* 1876, p. 622; *Journ. Linn. Soc.* vol. xvi. p. 82.

We owe this interesting addition to our stock of cultivated Crocuses to the enterprise and energy of Mr. George Maw. Before 1876, not even a dried specimen had reached England, and it was known to us only by the description of Parlatore. Mr. Maw undertook an expedition to Italy expressly for the purpose of hunting it out, and after much trouble, succeeded in accomplishing his object. The locality where he obtained it was Salita de Filetto, near Massa Marittima, in the Tuscan Maremma, where he found it in plenty, in full flower, at the middle of March. It is a well-marked species, taking a place in the series of vernal Odontostigmas, midway between *Sieberi* and *reticulatus* (*variegatus*). It has the coarse corm-coats of the latter, with a perianth limb like that of the former on the inside, but approximating to that of *variegatus* by having the outer segments distinctly striped externally from the summit to the base. The present plate was drawn from specimens presented by Mr. Maw, which flowered at Kew this present spring.

Descr. *Corm* subglobose; outer tunics as in *C. reticulatus* and *Susianus*, composed of coarse reticulated fibres. *Leaves*

two to six, contemporary with the flowers in March, narrow linear, with revolute edges and a distinct white central band. Top of the flower five or six inches above the top of the corm. *Basal spathe* none. *Proper spathe* monophyllous, whitish, clasping loosely the tube of the perianth. *Perianth-tube* two or three inches long, distinctly striped with lilac lines. *Throat* yellow, glabrous. *Segments* of the limb oblong, obtuse, an inch or under cultivation an inch and a half long, all bright lilac-purple inside, the three outer with five distinct feathered lilac stripes on a pale ground all the way down the back. The three inner striped at the base only. *Stamens* more than half as long as the perianth-segments, anthers and filaments both bright yellow. *Stigmas* bright orange-yellow, undivided, overtopping the anthers.—*J. G. Baker.*

H.T.D. del

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Tab. 6363.

SENECIO SUBSCANDENS.

Native of Tropical Africa.

Nat. Ord. Compositæ.—Tribe Senecionideæ.

Genus Senecio, *Linn.* (*Benth. et Hook. f. Gen. Plant.* vol. ii. p. 446).

Senecio *subscandens;* herbaceus, alte scandens, glaberimus, ramulis elongatis pendulis cylindraceis foliosis, foliis ovato-oblongis longe petiolatis pinnatipartitis 3–8-pollicaribus, petiolo basi auriculato, lobis utrinque 2–5 distantibus orbiculato-ovatis basi lata superne et inferne decurrentibus grosse sinuato-dentatis, terminali subdeltoideo basi profunde cordato, capitulis in cymas ramosas rotundatas longe gracile pedunculatas dispositis rotundatis, capitulis ½-pollicaribus angustis breviter gracile pedicellatis, involucri basi pauci-braeteolati bracteis 5 lineari-lanceolatis, floribus 10–12 tubulosis flavis, acheniis costatis setulosis.

S. subscandens, *Hochst in Herb. Schimper. Abyss.* iii. n. 1926; *A. Rich. Flor. Abyss.* vol. i. p. 434; *Oliv. Fl. Trop. Afric.* vol. iii. p. 421.

A very fine hothouse climber, which has been for many years cultivated in the Palm House of the Royal Gardens, to which it was presented by the late Dr. Welwitsch. It was first described from Abyssinian specimens, but it has also been found by Meller during Livingstone's Zambesi expedition, near the Murchison falls. It belongs to a small scandent section of the genus of which there are several tropical African and South African species. In the Palm House it forms a rambling herbaceous climber, trained up one of the iron girders, and flowering freely in January.

Descr. A tall climber, but not twining; stem and branches cylindric, succulent, green, with linear blotches. *Leaves* five to nine inches long and two to four inches broad across the lobes, long-petioled, the petiole rather slender, coloured like the stem, with two small broad auricles at the base, which are semi-amplexicaul; lobes two to six pair, and a terminal one; lateral lobes rounded ovate or trapezoid or almost orbicular, distant, adnate, with their bases prolonged both up and down the rachis, very coarsely sinuate-toothed, the teeth irregular, acute, quite entire, dark green, with

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pink veins; terminal lobe deltoid, deeply cordate at the base. *Cymes* axillary and terminal, long-peduncled, much branched; the alternate forming subglobose long-peduncled heads; dark ochreous yellow; bracts at the base of the peduncles and of the involucre small, subulate. *Heads* half of an inch long, on short slender pedicels, cylindric. *Involucral bracts* five, broadly linear, subacute, margins hyaline, green, reddish towards the tips. *Flowers* about ten, all tubular and hermaphrodite, exceeding the involucre. *Corolla-tube* slender; lobes short. *Anthers* entirely exserted. *Style* exserted, arms slender, with short terminal cones. *Achene* short, ribbed, setulose; pappus snow-white, soft.—*J. D. H.*

Fig. 1, Head; 2, flower; 3, style-arms:—*all enlarged.*

H.T.D. del.

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Tab. 6364.

HÆMANTHUS Mannii.

Native of Guinea.

Nat. Ord. Amaryllidaceæ.—Tribe Hæmantheæ.

Genus Hæmanthus, *Linn.*; (*Kunth, Enum.* vol. v. p. 586).

Hæmanthus (*Nerissa*) *Mannii*; caule foliifero speciali post scapum producto, foliis 5-6 oblongis acutis breviter petiolatis venulis transversalibus creberrimis, scapo subpedali maculato, umbellis 30–40-floris, bracteis linearibus reflexis floribus brevioribus, pedicellis flore 2-3-plo brevioribus, perianthii sesquipollicaris tubo segmentis paulo brevioribus, staminibus breviter exsertis.

Of this section *Nerissa* of the genus *Hæmanthus*, which is characterised by its narrow reflexing bracts, large thin leaves, lax inflorescence and spreading perianth-segments, the number of known species has increased rapidly during the last few years. Its type is the old well-known *H. multiflorus* of Sierra Leone. At the date of the publication of the fifth volume of Kunth's Enumeratio (1850), only three species were known, and now the number has been increased to ten, all of them tropical or subtropical. The present plant closely resembles *H. cinnabarinus* of Decaisne (Bot. Mag. tab. 5314) in the separate flowers and whole inflorescence, but in that species the leaves are produced upon long petioles from the base of the flowering stem, whilst in our present plant the leaves, as in *H. multiflorus*, grow upon a special stem, which is produced after the scape, and do not arrive at maturity until after the flowers are faded. It was gathered in April, 1861, by Mann, on the banks of the Bagroo river, but was not introduced into cultivation until last year, when it was sent to Mr. Bull, from Liberia, by his collector Mr. Carder. Our plate was drawn from a specimen presented by Mr. Bull, which flowered at Kew this present Spring.

Descr. *Rootstock* a large globose corm, with many fleshy cylindrical root-fibres. *Leaves* produced upon a separate

stem, which is developed later than the scape, five or six in number, oblong, acute, bright green, thin in texture, half a foot or more long, the curved main veins connected by very fine and close oblique cross bars. *Scape* about a foot long, solid, terete, spotted with bright claret blotches on a pale ground. *Umbel* of from thirty to forty flowers, centripetal, four or five inches in diameter when expanded; bracts linear, red, membranous, reflexing, an inch and a half long; pedicels bright claret-red, half or three quarters of an inch long. *Flowers* bright scarlet, fading to crimson, an inch and a half long; ovary very small, green, round-oblong; perianth-tube cylindrical; segments spreading or reflexing, linear-lanceolate, a little longer than the tube. *Filaments* the same colour as the perianth-segments, finally a little exserted; anthers very small, oblong, versatile, yellow. *Style* entire, scarcely longer than the stamens.—*J. G. Baker.*

H.J.Eddes del.

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TAB. 6365.

FRITILLARIA ARMENA.

Native of Armenia.

Nat. Ord. LILIACEÆ.—Tribe TULIPEÆ.

Genus FRITILLARIA, *Linn.*; (*Baker in Journ. Linn. Soc.* vol. xiv. p. 251).

FRITILLARIA *armena;* bulbo parvo globoso, caule semipedali vel pedali unifloro, foliis 4–5 alternis ascendentibus acutis, inferioribus lanceolatis, superioribus linearibus, perianthio infundibulari-campanulato livide purpureo subpollicari, segmentis obovato-oblongis extus glaucescentibus intus haud tessellatis, foveolâ parva oblonga prope basin proeditis, staminibus perianthio paulo brevioribus, stylo ovario æquilongo apice stigmatoso obscure tricuspidato interdum exserto.

F. armena, *Boiss. Diagn.* part vii. p. 106.

This little Fritillary is interesting as forming a connecting link between the two sections *Monocodon* and *Amblirion*, the first marked by its distinctly trifid and the latter by its entire style, in both cases in combination with a small globose bulb, with only two or three thick tunic-scales and a capsule with rounded lobes with shallow interstices. Of the species of the latter section it approximates to *F. tulipifolia*, M. B. (Bot. Mag. tab. 5969), and *F. dasyphylla* Baker (Bot. Mag. t. 6321); and of the former to *F. græca*, Boiss., resembling all these three in its comparatively dwarf habit and lurid-purple flowers, without any distinct tessellation. The typical plant from Armenia is represented on the left-hand side of the plate. The drawing was made from a living specimen received at the end of March from Mr. George Maw, who procured the bulbs from Jas. Zohrab, Esq., the British Consul at Erzeroum. We have dried examples in the Kew herbarium from the same gentleman, and from two other collectors, Aucher Eloy (from whose specimens Boissier's diagnosis was made), and Huet du Pavillon. The latter localises it on the Tech-dagh, above Erzeroum, at an elevation

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above sea-level of from seven thousand to eight thousand feet. The plant drawn on the right-hand side of the plate was received from Mr. Maw at the same time. It was procured by him in the neighbourhood of Smyrna, has a yellow flower, and may prove when better known, to be distinct specifically.

Descr. *Bulb* globose, about half an inch in diameter, with two large fleshy brown tunic scales. *Stem* half a foot or a foot long, with a single cernuous flower. *Leaves* four or five, alternate, erect, all remote from both the flower and the bulb; the lower ones lanceolate, two or three inches long, the upper ones linear. *Perianth* about an inch long, between funnel-shaped and campanulate; segments obovate-oblong, dark purple, untessellated, obtuse, minutely ciliated, glaucescent on the outside, the face paler and faintly ribbed, the nectary a minute oblong, greenish depression at the base of the segment. *Stamens* nearly as long as the perianth; filaments purple, pilose; anthers linear-oblong, about a quarter of an inch long. *Style* as long as the green clavate ovary, obscurely tricuspidate at the tip, reaching to the top of the perianth-segments or sometimes a little exserted.—*J. G. Baker.*

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TAB. 6366.

LEUCOPOGON VERTICILLATUS.

Native of South Western Australia.

Nat. Ord. EPACRIDEÆ.—Tribe STYPHELIEÆ.

Genus LEUCOPOGON, *R. Br.*; (*Benth. et Hook. f. Gen. Plant.* vol. ii. p. 614).

LEUCOPOGON *verticillatus*; frutex erectus glaberrimus, foliis 5–8-natim verticillatis sessilibus lanceolatis v. lineari- v. oblongo-lanceolatis acutis v. acuminatis nervis perplurimis tenuibus lineatis, subtus glaucis, spicis axillaribus foliis multo brevioribus v. iis æquilongis gracilibus densifloris, pedunculo brevi dense bracteato, bracteis bracteolisque obtusis, floribus minutis glabris, sepalis ovatis acutis ciliolatis tubo corollæ glaberrimo multo brevioribus, corollæ lobis tubo dimidio brevioribus intus basin versus barbatis, antheris linearibus medio dorso affixis.

L. verticillatus, *R. Br. Prodr. Fl. Nov. Holl.* p. 541; *DC. Prodr.* vol. vii. p. 745; *Sonder in Plant. Preiss.* vol. i. p. 307; *F. Muell. Fragment.* vol. iv. p. 122; *Benth. Fl. Austral.* vol. iv. p. 184.

L. glaucescens, *DC. Prodr.* vol. vii. p. 745.

STYPHELIA verticillata, *Spreng. Syst.* vol. i. p. 656; *F. Muell. Fragm.* vol. vi. p. 43.

LISSANTHE verticillata, *Lindl. Swan River Bot. App.* p. 25.

A very singular form of the great genus *Leucopogon*, which numbers nearly one hundred and twenty species in Australia, and most of which have small heath-like leaves. Some, however, have flat leaves, of which, besides the present plant, *L. lanceolatus* (Plate 3162), and *L. Riihei* (Plate 3251), are examples. Again, by far the majority have scattered leaves, whereas this and a few others have them so closely approximate as to be practically whorled; these have usually highly polished stems and branches, with circular scars, and the inflorescence being axillary, is also more or less whorled.

The great beauty of *L. verticillatus* is due to the tender rose-colour of the young leaves, which appear in drooping masses surrounded at the base with rigid sheathing scales. The flowers are very minute. I am indebted to Isaac

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Andrew Henry, Esq., for a living specimen of this remarkable plant, which flowered in autumn of last year; it was raised from seed sent from Western Australia, where the species inhabits the country from King George's Sound to Swan River.

Descr. A tall, smooth, glabrous shrub, several feet high, with very slender cylindric polished brown branches, marked with annular scars. *Leaves* towards the ends of the branches in whorls of five to eight, one and a half to five inches long, sessile, spreading and decurved, lanceolate, of variable breadth, acute or acuminate, usually very finely; pale green above, with numerous very slender parallel nerves, connected by very slender longitudinal nervules; glaucous beneath. *Spikes* axillary, slender, very variable in length, usually shortly peduncled, very many-flowered; peduncle clothed with minute ovate concave bracts; rachis slender. *Flowers* very minute, about one-tenth of an inch long, pale rose-coloured; bracteoles ovate, obtuse, shorter than the calyx. *Sepals* ovate-oblong, acute, ciliolate, not half the length of the glabrous corolla tube. *Corolla* lobes narrowly ovate, bearded below the middle within. *Anthers* long, linear, attached by the back at the middle to a short stout filament. *Disk* 5-crenate. *Ovary* usually 5-celled; style short.—*J.D.H.*

Fig. 1, Flower; 2, ovary and disk; 3, transverse section of ovary; 4, stamen —*all enlarged.*

H T D. del.

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GRIFFINIA ORNATA.

Native of South Brazil.

Nat. Ord. Amaryllidaceæ.—Tribe Amaryllideæ.

Genus Griffinia, *Ker*; (*Kunth, Enum.* vol. v. p. 542).

Griffinia *ornata*; bulbo ovoideo collo producto, foliis 6–8 synanthiis petiolatis oblongis acutis subpedalibus venulis transversalibus creberrimis, scapo laterali compresso pedali vel sesquipedali, umbellis 10–20-floris, bracteis pallidis oblongo-deltoideis, pedicellis flore subduplo brevioribus, floribus pallide lilacinis $2\frac{1}{2}$–3 poll. longis, tubo brevi, segmentis oblanceolatis acutis, staminibus inclusis suprema abrupte recurvata, stylo ad apicem stigmatosam integro.

G. ornata, *T. Moore in Gard. Chron.* 1876, part i. p. 266, fig. 47.

This new *Griffinia*, for horticultural purposes, surpasses all the other known species, with the exception of the very rare *G. dryades* (Bot. Mag. tab. 5786). It is a typical *Griffinia*, most like the old well-known *G. hyacinthina*, but is much more robust in habit, with more numerous larger leaves with closer cross-veining, and larger flowers mounted on long pedicels. Like all the other species, it is only adapted for stove-cultivation. It was first imported by Mr. Bull, in 1875, from the neighbourhood of Rio Janeiro. Our drawing was made from a plant presented by him to the Kew collection, which flowered in February, 1878.

Descr. *Bulb* ovoid, three or four inches in diameter, with many brown tunics and a produced neck three to six inches long. *Leaves* six or eight to a bulb, contemporary with the flowers, with a deeply channelled petiole much shorter than the blade, which is oblong, acute, about a foot long, cuneate at the base, bright green on the upper surface, paler green beneath, with about fifteen vertical ribs on each side of the costa, which are connected by very fine close oblique cross-bars. *Scapes* lateral, sometimes two to a bulb, a foot or

a foot and a half long, rather compressed. *Umbel* centripetal, 10–20-flowered; bracts pale-green, deltoid, about as long as the pedicels, which are one and a half or two inches in length and subtended by linear-subulate bracteoles. *Perianth* pale lilac, two and a half or three inches long; ovary oblong-triquetrous, green; ovules two in each cell, erect; tube very short; segments oblanceolate, acute, about a third of an inch broad. *Stamens* six, declinate, shorter than the perianth-segments, the uppermost abruptly recurved; anthers small, linear-oblong, pale lilac. *Style* entire, a little longer than the stamens; stigma capitate.—*J. G. Baker*.

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Tab. 6368.

MASDEVALLIA POLYSTICTA.

Native of Peru.

Nat. Ord. Orchideæ.—Tribe Pleurothallideæ.

Genus Masdevallia, *Ruiz et Pav.*; (*Lindl. Gen. et Sp. Orchid.* p. 192).

Masdevallia (Amaridea) *polysticta*; foliis spathulato-oblanceolatis obtusis in petiolum brevem angustatis apice retusis v. obtusis, scapis gracilibus folia excedentibus plurifloris superne maculatis, floribus racemosis pallide lilacinis purpureo-punctatis, bracteis majusculis late ovato-oblongis viridibus, sepalorum tubo perbrevi basi modice gibbo, sepalo dorsali late ovato cymbiformi lateralibus oblique oblongis omnibus ciliolatis caudas patentes triplo longiores ochraceas punctatas abrupte angustatis, petalis parvis spathulatis serratis, labello oblongo longitudinaliter replicato, lobo terminali angustiore oblongo antice cucullato apice rotundata, columna apice serrulata.

M. polysticta, *Reichb. f. in Gard. Chron.* 1874, vol. i. p. 338; and ii. 290 (non tab. nost. 6258), 1875, i. 656, fig. 134.

In the 1876 volume of this work I figured a little closely allied *Masdevallia*, also from Peru, which was believed to be Reichenbach's *M. polysticta*. This, he informs me, is not the case, and that the said figure is of his *M. melanopus* (Gard. Chron. 1873, vol. i. p. 338; 1874, vol. ii. p. 322), and notwithstanding the difference in the colour of the three tails, which he describes as very dark, I, of course, accept his determination. *M. polysticta* was introduced from Northern Peru by M. Roezl in 1874, along with *M. melanopus*, and a hitherto unfigured species, *M. caloptera*, Reichb. f. It has flowered in Mr. Williams' nursery and at Kew and elsewhere in the winter months.

Descr. Densely tufted. *Leaves* four to five inches long, oblanceolate or almost spathulate, obtuse, retuse, or notched at the apex, obscurely 3-nerved, keeled at the back, gradually narrowed into a rather stout petiole, pale green. *Scapes* numerous, longer than the leaves, bearing a raceme of four to eight flowers, green below, speckled with purple above. *Bracts* rather large, one-third of an inch long, ovate-

oblong, green, subacute. *Flowers* two and a half inches across the tips of the sepals, pale lilac, speckled with purple. Tubular portion of the *sepals* short, slightly gibbous at the base; free portion of the dorsal sepal ovate, concave, of the lateral more oblong and oblique; all ending suddenly in filiform tails more than twice their own length, of an ochreous colour, speckled with purple; margins of the sepals ciliolate. *Petals* obovate-spathulate, serrate. *Lip* oblong, smooth, sides longitudinally reflexed from the mesial line, terminated by a short oblong obtuse terminal lobe, which is hooded in front, and upon the back of which the sides of the body of the lip are produced. *Column* serrulate at the apex.—*J. D. H.*

Fig. 1, Flower; 2, vertical section of ditto; 3, lip; 4, petal:—*all enlarged.*

H.T.D. del.

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Tab. 6369.

CLEMATIS grewiæflora.

Native of the Himalaya Mountains.

Nat. Ord. Ranunculaceæ.—Tribe Clematideæ.

Genus Clematis, *Linn.*; (*Benth. et Hook. f. Gen. Plant.* vol. i. p. 3.)

Clematis *grewiæflora*; alte scandens, dense fulvo-tomentosa, foliis pinnatisectis, foliolis 3–5 coriaceis longe petiolulatis late ovatis v. ovato-cordatis lobulatis v. obtuse dentatis serratisve ceterum integerrimis v. denticulatis grosse reticulatis nervis subtus crassis, paniculis axillaribus plurifloris ramis ramulisque robustis divaricatis, alabastris ovoideis, floribus majusculis campanulatis dense fulvo-tomentosis, sepalis coriaceis lineari v. late-oblongis, costatis apicibus revolutis acuminatis, filamentis linearibus carpellisque longe pilosis.

C. grewiæflora, *DC. Syst. Veg.* vol. i. p. 140; *Prodr.* vol. i. p. 4. *Don, Prodr. Fl. Nep.* p. 191. *Wall. Cat.* No. 4678. *Hook. f. et Thoms. Flor. Ind.* vol. i. p. 10. *Hook. f. Fl. Brit. Ind.* vol. i. p. 6.

The Himalaya mountains are the head-quarters of the genus *Clematis* in respect of number and variety of forms, and many of the species are of great beauty. Witness the *C. montana* (Plate 4061), *C. graveolens* (Plate 4495), *C. smilacifolia* (Plate 4259), *C. barbellata* (Plate 4794), and others not hitherto introduced, though none of them attain the size or have the beauty of colour of the Japanese species of the *Florida* and *Fortunei* set. Most of the above are perfectly hardy; this is not the case with *C. grewiæflora*, which requires a cool greenhouse, when it forms an immense rambling climber, which at Kew ascended in a few years to the gallery of the Temperate House, along the rail of which it ran for many feet, flowering profusely in early spring. The species is very nearly allied to *C. Buchananiana*, also a Himalayan species, under which name it was received from the Calcutta Botanic Gardens about twelve years ago. It, however, differs from that plant in its much more dense clothing of villous fulvous hairs, as also in the shape of the leaflets. It has a very wide Himalayan range, being common towards the base of the range from Kumaon to Bhotan, ascending to four

thousand feet elevation. In Sikkim and East Nepal I found it flowering in November. A variety is found in Kumaon with almost white pubescence.

Descr. A lofty climber, with a stout woody trunk two inches in diameter at the base; branchlets, leaves, and inflorescence densely clothed with tawny villous pubescence. *Leaves* six to eight inches long, pinnate, with one to two pairs of leaflets and a terminal one. *Leaflets* one to three inches long, petioled, broadly ovate or ovate-cordate, obtuse or acute, lobulate or waved, or unequally coarsely-toothed, sometimes also denticulate, strongly reticulated, dull green; petiolule slender, flexuous. *Panicles* axillary, broadly pyramidal, four to eight inches long, with opposite strict horizontal branches, which are themselves again trichotomously divided; branches and pedicels very stout, densely villous; bracts leafy, sessile, or shortly petioled. *Flowers* drooping, from three-fourths to one and a half inches long, broadly campanulate, tawny-yellow. *Sepals* very variable in breadth and length, from almost linear to broadly oblong, tips acuminate revolute, thickly coriaceous, strongly ribbed on the back. *Stamens* very numerous, filaments linear, silky; anthers linear. *Carpels* very numerous and densely packed, flattened, silky; when ripe, with feathery awns one and a half inch long, the whole forming a head often three inches in diameter.—*J. D. H.*

Fig. 1, Stamens; 2, carpels:—*enlarged.*

W T D del.

Vincent Brooks Day & Son Lith

Tab. 6370.

MAGNOLIA stellata.

Native of Japan.

Nat. Ord. Magnoliaceæ.—Tribe Magnolieæ.

Genus Magnolia, *Linn.* (*Benth. et Hook. f. Gen. Plant*, vol. i. p. 18.)

Magnolia *stellata ;* foliis hysteranthiis deciduis obovato- v. elliptico-oblongis basi angustatis obtusis acutis v. subacuminatis junioribus subtus pubescentibus, gemmis alabastrisque lanatis, sepalis petalis multo brevioribus elliptico-oblongis obtusis dorso-lanatis, petalis numerosis lineari-oblongis obtusis albis patulis demum reflexis, staminibus paucis, antheris appendiculatis, carpellis ad 50 glabris 2-ovulatis stylis subulatis, maturis paucis corticatis axi adhærentibus bivalvim deliiscentibus, superne cuspidatis.

M. stellata, *Maximov. in Bull. Acad. Petersb.; Mel. Biol.* p. 506, t. viii.; *Franch. et Savat. Enum. Plant. Jap.* p. 15.

M. Haleiana, *S. B. Parsons ; Gard. Chron. N. S.* vol. ix. p. 378, *cum Ic. Xylog.*

Talauma stellata, *Miquel, Prolus, Flor. Japon.* p. 145; *Ann. Mus.-Lugd. Bat.* p. 257.

Buergeria stellata, *Sieb. and Zucc. Flor. Jap. Fam. Nat.* p. 78. tab. IIa.

This very interesting addition to the British Arboretum has been long known to botanists, as the genus *Buergeria*, founded on an erroneous observation as to the nature of the fruit, which its authors had seen only in an imperfect state, and which, had it been correct would have referred the plant to the genus *Talauma*, as subsequently indicated by Miquel. Quite recently it has been named *Magnolia Halleana* by Mr. S. B. Parsons, of Flushing. (U.S.Am.), in compliment to Mr. G. R. Hall, of Japan, its introducer into America, as we learn from a notice with a plate in the 'Garden' (vol. xiii. p. 15.)

Like most other introductions of horticultural interest from Japan, this has been in cultivation by the natives of the Islands,

having been found in gardens at Nagasaki by Oldham in 1862. It is, however, stated by Franchet and Savatier to be indigenous in woods of Mount Fusi Yama, and in central Niphon, where it forms a small tree. I am indebted to Messrs. Veitch for the specimen here figured which flowered in their grounds at Coombwood in March of the present year.

Descr. A small tree, with the habit of *M. Yulan*, quite glabrous except for a slight silkiness on the young leaves beneath, and the silkily hursute sepals and bracts. *Leaves* deciduous, appearing after the flowers, two to five inches long, variable in shape from rather narrowly obovate with rounded tips to elliptic and acuminate, membranous; base always narrowed; petiole one-quarter to one-third inch long. *Flowers* three inches in diameter; white, sweet-scented. *Sepals* much shorter than the petals, silkily hairy externally, oblong, obtuse. *Petals* about 15, narrowly linear-oblong. obtuse, at first spreading, then reflexed, white, with a very faint pink central streak externally. *Stamens* few, filaments short, dilated; anthers longer, linear, clawed at the tip. *Carpels* very numerous, closely packed on a sessile fleshy axis; style subulate; ovules 2. *Fruit* of few ripening carpels, which are cuspidate at the tip, coriaceous, with a separable bark, persistent, 2-valved, usually 1-seeded. *Seed* orbicular, compressed.—*J. D. H.*

Fig. 1, transverse section of axis and carpels; 2 and 3, longitudinal and dorsal section of carpel; 4 and 5, stamens;—figures to the right are of a ripe carpel, a seed, and a seed cut longitudinally showing the embryo:—*all enlarged.*

H T D del.

Vincent Brooks Day & Son Lith

Tab. 6371.

FRITILLARIA Sewerzowi.

Native of Turkestan.

Nat. Ord. Liliaceæ.—Tribe Tulipeæ.

Genus Fritillaria, *Linn.* (*Baker in Journ. Linn. Soc.* vol. xiv. p. 251).

Fritillaria (*Korolkowia*) *Sewerzowi*, bulbo subsolido globoso, caule erecto pedali vel sesquipedali, foliis propriis 5–6 oppositis vel suboppositis sessilibus oblongis obtusis, floribus 4–12 cernuis breviter pedicellatis in racemum laxum dispositis, superioribus minoribus abortivis, bracteis magnis viridibus foliiformibus, perianthii pollicaris infundibularis luride purpurei segmentis oblongo-oblanceolatis subacutis dorso carinatis intus deorsum foveola lineari præditis, staminibus perianthio vix brevioribus, filamentis filiformibus glabris, antheris oblongis basifixis, stylo elongato integro, capsulis oblongo-trigonis obtuse angulatis.

F. Sewerzowi, *Regel Enum. Pl. Semenow*, part iii. p. 120, No. 1057; *Baker in Journ. Linn. Soc.* vol. xiv. p. 267.

Korolkowia Sewerzowi, *Regel Animad.* (1873), p. 17; *Gartenflora*, vol. xxii. p. 161, tab. 760; *Fl. Turkest.* p. 150.

This is one of the most curious, I would not say beautiful, of the many new bulbous plants that have rewarded the recent enterprising and assiduous researches of the Russian naturalists in Central Asia. I do not see that it has any character to separate it generically from *Fritillaria*, but it presents a most distinct type of habit, the long raceme with its abortive upper flowers recalling *F. persica*, but the flowers much fewer, quite untessellated and as lurid a purple outside as in *F. græca* or *F. tulipifolia*, and the bracts very largely developed, the lower ones being quite similar in size and texture to the upper leaves proper. It inhabits the mountains of Turkestan, reaching an elevation of six thousand feet above sea-level, and is quite hardy in England. We received it at Kew some time ago from Dr. Regel. Mr. Elwes has been very successful with it, his specimens having attained a far greater size and luxuriance than ours. The plate was made

from a specimen which he flowered at Cirencester, in March of this present year. That in the Gartenflora has been coloured from a plant in which the purple of the outside of the perianth has not been properly developed.

Descr. *Bulb* globose, an inch or more in diameter, solid in the lower part, furnished at the top with a few membranous scales, that enwrap the base of the stem, emitting from its base filiform stolons. *Stem* a foot or more long, glaucous, terete. *Leaves* below the inflorescence five or six, all except the lowest opposite or subopposite, sessile, oblong, obtuse, four or five inches long, pale green when mature, rather glaucous when young. Flowers four to twelve, cernuous on pedicels a quarter or half an inch long, forming a lax raceme, which occupies about half of the stem, each bracteated by a large green leaf, the upper ones smaller and abortive. *Perianth* about an inch long, funnel-shaped, lurid-purple with a glaucous tint outside, greenish-yellow within, not at all tessellated; segments subequal, oblanceolate-oblong, subacute, with a raised keel outside down the lower half which is more strongly marked in the outer three and a yellow-green linear nectary at the top of the claw. inside. *Stamens* nearly as long as the perianth-segments; filaments filiform, glabrous; anthers oblong, basifixed, purplish. *Ovary* oblong-trigonous; style entire, reaching to the top of the anthers; stigma capitate. *Capsule* obtusely angled.—*J. G. Baker.*

Fig. 1, A segment of the perianth, seen from the inside, showing its foveole or nectary; 2, a single stamen; 3, the pistil,—*all magnified.*

5

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2.

H.T.D del.

Vincent Brooks Day & Son Lith.

MASDEVALLIA Shuttleworthii.

Native of the United States of Colombia.

Nat. Ord. Orchideæ.—Tribe Pleurothallideæ.

Genus Masdevallia, *Ruiz et Pav.* (*Lindl. Gen. et Sp. Orchid.* p. 192).

Masdevallia *Shuttleworthii;* foliis petiolatis elliptico-oblongis subacutis 3-nerviis, scapis folia subæquantibus unifloris viridibus, floribus pro plantâ amplis, bracteis acuminatis, perianthii tubo brevissimo basi gibbo, sepalo dorsali modice cucullato suberecto obovato repente in caudam longissimam angustato roseo punctis pallide conspurcato et nervis 5–7 roseis instructo, sepalis lateralibus oblique ovatis in caudas elongatas sensim attenuatis saturate roseis punctis rubris conspurcatis, petalis lineari-oblongis apice obtuse 2-lobis, labelli lamina late oblonga apice recurva obtusa disco 2-carinata, columna brevi.

M. Shuttleworthii; *Reichb. f. in Gard. Chron.* 1875, pars i. p. 170, *et* 1876, pars ii. p. 782.

The rapid increase in number of imported species of *Masdevallia* is certainly the most striking feature in the history of the Orchid culture of the past ten years. No less than thirteen have been figured in the Botanical Magazine within that period, and only four before it; whilst at least double that number are in cultivation in individual collections of the first-class. The geographical limits of the genus seem to be limited to the northern and western countries of South America, where they inhabit cool-temperate humid regions. *M. Shuttleworthii* was discovered, by the traveller whose name it bears, in the United States of Colombia, when collecting for Mr. Bull. I am indebted to W. H. Punchard, Esq., of Poulett Lodge, Twickenham, for the loan of the specimen here figured, which isbelieved to be unique; it flowered in March of the present year.

Descr. *Leaves* small, two inches long, narrowed into a

rather slender petiole of about the same length; elliptic-oblong, acute or subacute, pale green, obscurely 3-nerved. *Scapes* several, about equalling the leaves, rather stout, 1-flowered; bracts appressed, long acuminate, with sometimes a setaceous point. *Flowers* large for the size of the plant, one inch in diameter exclusive of the tails. *Perianth* with the sepals inserted into a very short broad gibbous tube. *Dorsal sepal* about one inch long, obovate, concave, suddenly contracted into an erect rather stout curved tail twice or thrice its own length, pale yellowish-red, obscurely sprinkled with pale red, and with five to seven distinct red nerves. *Lateral sepals* spreading and decurved, broadly ovate, gradually contracted into slender tails twice as long as themselves, rose-coloured, closely sprinkled with red spots. *Lip* very small; pale, broadly oblong with an obtuse recurved tip, and two longitudinal mesial ridges. *Petals* narrowly linear-oblong, obtusely 2-lobed at the tip. *Column* very short.—*J. D. H.*

Fig. 1, Front, and 2, side view of column and petals; 3 and 4, front and side view of lip; 5 and 6, front and back view of the blade of the lip:—*all enlarged.*

H.T.D del

Vincent Brooks Day & Son Lith

TAB. 6373.

DEHERAINIA SMARAGDINA.

Native of Tropical Mexico.

Nat. Ord. MYRSINEÆ.—Tribe THEOPHRASTEÆ.

(Genus DEHERAINIA, *Decaisne in Ann. Sc. Nat. Ser.* vi. vol. iii. p. 139).

DEHERAINIA *smaragdina;* frutex, ramulis patentim hirsutis, foliis apices versus ramulorum confertis patulis elliptico-ovatis obovatisve acuminatis in petiolum brevem angustatis integerrimis v. apices versus obtuse serrulatis subtus precipue ad nervos pilosis, floribus axillaribus solitariis pedicellatis saturate viridibus, pedicello brevissimo ebracteato hirsuto, sepalis coriaceis orbiculatis ciliolatis, corolla ampla, lobis patentibus planis obovato-orbiculatis carnulosis impresso-punctulatis glabris, tubo brevi intus subpiloso, appendicibus minutis subulatis.

D. smaragdina, *Dene. lc.* p. 139, t. 12.

POSOQUERIA macrantha, THEOPHRASTA smaragdina, *Lind.*, et JACQUINIA smaragdina, *Hort.*

A plant with deep green flowers of very considerable size, does not often occur either amongst monocotyledons or dicotyledons, though familiar in *Ixia viridiflora* of the first-class, and occuring amongst *Anonaceæ* and a few other orders in the second. It is singular that almost all the other genera of the tribe *Theophrasteæ*, to which *Deherainia* belongs, have small and white or coloured flowers, namely, *Theophrasta*, *Clavija*, and *Jacquinia*.

The genus *Deherainia* was established by Decaisne in 1876, on the subject of the present plate, and named by him in compliment to M. Pierre-Paul Deherain, aide-naturaliste of the museum of the Jardin de Plants. It was discovered in Mexico, near Tabasco, one of the oldest towns of the Mexican Confederation, on the borders of the Chiapes, celebrated as the scene of one of Cortez's earliest and greatest victories. The climate of Tabasco is hot and damp, and, as was to be expected, *Deherainia* is a thoroughly tropical plant. M. Decaisne describes it as flowering in the stoves of the Jardin de Plantes in May and July. Our plant flowered in the

Palm House of Kew in May, when quite small; it was received from Mr. Linden, who imported it into Europe.

DESCR. A much branched leafy shrub; branchlets, petioles, and pedicels clothed with spreading rusty-coloured hairs. *Leaves* crowded towards the ends of the branches, spreading, two to four inches long, elliptic-oblong obovate or lanceolate, acute, or acuminate, quite entire or obtusely serrated towards the apex, narrowed into a short petiole at the base, membranous, sparsely hairy on the under-surface and midrib above, deep green. *Flowers* solitary, axillary, very shortly pedicelled, ebracteate, about two inches in diameter, horizontal or nodding. *Calyx* hemispherical; tube short, rounded at the base; lobes orbicular, coriaceous, margins ciliate. *Corolla-tube* very short, slightly hairy within; lobes orbicular-obovate, quite glabrous, flat, coriaceous, with impressed dots on the upper surface, very dark green, with paler margins; throat almost black. *Stamens* 5, at first conniving over the stigma, then spreading, filaments filiform-subulate. *Anthers* nearly quadrate, lobes slightly divaricating upwards, extrorse. *Ovary* ovoid, tapering into a straight slender style, stigma capitate; ovules very numerous, on a globose central placenta.—*J. D. H.*

Fig. 1, Vertical section of corolla; 2, ditto of calyx and ovary; 3, flower 4 and 5, front and side view of stamens; 6, ovary opened:—*all enlarged.*

H T D del

W Brooks Lith

Tab. 6374.

TULIPA saxatilis.

Native of Crete.

Nat. Ord. Liliaceæ.—Tribe Tulipeæ.

Genus Tulipa, *Linn.*; (*Baker in Journ. Linn. Soc.* vol. xiv. p. 275).

Tulipa *saxatilis*; bulbo globoso, caule pedali viridi glabro sæpissime bifloro, foliis tribus glabris, inferiori lanceolato, superioribus linearibus, floribus erectis pro genere magnis, perianthii oblongo-infundibularis segmentis præter basin luteum splendide pallide purpurascentibus basi pilosis a pice deltoideis puberulis, interioribus oblongis, exterioribus obovatis, filamentis luteis basi barbatis, antheris lineari-oblongis filamento brevioribus, ovario viridi cylindrico-trigono, stigmatibus parvis.

T. saxatilis, *Sieber, Plant. Crete Exsic., ex parte; Spreng. Syst. Veg.* vol. ii. p. 63; *Reich. Ic. Crit.* tab. 396; *Schultes in Roem. et Schultes Syst. Veg.* vol. vii. p. 385; *Kunth, Enum.* vol. iv. p. 226; *Regel, Enum.* p. 25; *Baker in Journ. Linn. Soc.* vol. xiv. p. 289.

This is a very rare Tulip, that has been known for a long time in herbaria as a native of Crete, but has never been introduced into cultivation till now, when it has been re-discovered and brought home by Mr. Geo. Maw, who, as well as Mr. Elwes, has flowered it successfully this present spring. It is a most distinct and interesting species, both from a horticultural and botanical point of view. For decorative purposes we do not get anywhere else in the genus a large flower of a bright mauve-purple colour, with a bright yellow eye. The only other large-flowered tulip, with bearded filaments, is *T. Hageri*, lately figured (Bot. Mag. t. 6242). Its locality in Crete is Cape Maleca, in Raulin's "Zone des collines," which reaches from five hundred to two thousand feet above sea-level. Under the same label Sieber distributed the small-flowered *T. cretica* of Boissier and Heldreich, supposing it to be an alpine form of the same species.

Descr. *Bulb* globose, with brown membranous tunics. *Stem* a foot or more long, green, glabrous, usually branched low down, and bearing a couple of flowers. *Leaves* usually three to a stem, glabrous, the lowest lanceolate, reaching

sometimes a foot in length, and an inch and a half in breadth, narrowed gradually to the point, the two upper ones linear. *Perianth* oblong-infundibuliform, two or two and a half inches long, a light bright mauve-purple inside and out in the upper two-thirds, bright yellow at the base. *Segments* pubescent at the base and puberulent outside at the deltoid tip, the three outer oblong, under an inch broad at the middle, the three inner obovate, an inch and a quarter broad above the middle. *Stamens* an inch long, the linear-oblong blackish anthers shorter than the bright yellow filaments, which are bearded on the thickened part near the base. *Ovary* green, cylindrical-trigonous, a sixth of an inch in diameter; stigmas each a line broad.—*J. G. Baker.*

Fig. 1, Tip of a segment of the perianth; 2 and 3, single stamens:—*both magnified.*

N.E.B. del J.N.Fitch Lith

Vincent Brooks Day & Son Lith

PHILODENDRON SERPENS.

Native of New Grenada.

Nat. Ord. Aroideæ.—Tribe Philodendreæ.

Genus Philodendron, *Schott.* (*Prodr. Syst. Aroid.* p. 219).

Philodendron *serpens;* caudice flexuoso scandente ad nodos radicante apicem versus folioso et squamis fuscis fibrosis persistentibus tecto, foliis amplis oblongo-panduriformibus acutis v. apiculatis basi cordatis multinerviis, nervis horizontalibus lente sursum arcuatis tenuibus loborum posticorum 3–4 in unum intramarginalem crassiusculum conjunctis, petiolo viridi laminæ subæquilongo tereti paleis crassiusculis subulatis brevibus recurvis dense obtecto, pedunculis axillaribus solitariis crassis albis, spatha alba circumscriptione oblonga, dimidio inferiore ovoideo clauso, superiore æquilato late cymbiformi apiculato aperto, spadice crasso recto spatha paulo breviore albo subacuto, ovariis depressis 5–6-gonis 5–6-locularibus, stigmate sessili radiatim 5–6-lobo, lobis rotundatis.

A very handsome species of the immense tropical American genus *Philodendron*, imported from New Grenada by Messrs. Veitch, and well suited for the wall-decoration of a humid tropical house. It belongs to Schott's second section of the genus, with more or less cordiform leaves, and the nerves arching upwards; but I am not so certain as to which of the subordinate groups of that order it should be referred. It agrees with that called *Achyropodium* in the character of the petiole, but the venules are less pinnately disposed. There is no plant answering to it in the Kew collection, which has recently been catalogued by Mr. N. E. Brown, and the list of its contents published in the Official Report of the Royal Gardens for 1877.

Descr. *Caudex* long, scandent, serpentine, rooting at the nodes probably against the bark of forest trees; leafy at the summit, clothed between the leaves with dense masses of the fibrous remains of the sheathing scales. *Leaves* bright green; blade a foot to a foot and a half long, between oblong and fiddle-

shaped, that is, slightly contracted above the broad base which forms rounded lobes on either side of the broad basal sinus, subacute or apiculate, rather membranous ; nerves numerous, rather slender, horizontal and arching upwards, the three or four basal joining into one stout one ; venules subhorizontal between the nerves, or somewhat pinnately disposed towards the leaf-base ; petiole stout, terete, about as long as the blade, clothed with short reflexed thick fleshy ovate-subulate scales. *Peduncles* solitary in the axils of the leaves, stout, white, terete, shorter than the spathe, longitudinally rugulose at the top, as is the base of the spathe. *Spathe* five inches long, thick and fleshy, cylindric-oblong, constricted in the middle ; lower half closed, tumid, pale flesh-coloured outside, pale purplish within ; upper half broad, but open, boat-shaped, apiculate, pale straw-coloured. *Spadix* as long as the spathe, included, stout, cylindric, white, subacute. *Ovaries* densely crowded, depressed, five- to six-angled, five- to six-celled, with a depressed radiating five- to six-lobed stigma, the lobes orbicular.—*J. D. H.*

Fig. 1, Scales of petiole, of the *natural size* ; 2, imperfect ovaries ; 3 and 4, perfect ovaries :—*enlarged.*

W.G.S. del J.N.Fitch Lith.

Vincent Brooks Day & Son. Lith

Tab. 6376.

CASTILLEJA INDIVISA.

Native of Texas.

Nat Ord. Scrophulariaceæ.—Tribe Euphrasieæ.

Genus Castilleja, *Linn. fil.* (*Benth and Hook. f. Gen. Plant*, vol. iii p. 793.)

Castilleja (*Euchroma*) *indivisa;* annua v. biennis, glanduloso-pubescens, foliis oblongis lineari-oblongisve sessilibus obtusis v. subacutis undulatis irregulariter pauci-dentatis, spica densiflora demum interrupta, bracteis late obovatis sæpissime integerrimis demum coccineis, calycis utrinque fissi lobis retusis, corollæ stramineæ tubo elongato basi curvo, galea brevi truncata marginibus recurvis, labio inferiore brevissimo viridi 3-lobulato lobulis obcordatis.

C. indivisa, *Engelm. MSS.; Benth. in DC. Prodr.* vol. x. p. 530; *Gray, Synopt. Fl. of N. Am.* vol. ii. p. 295.

Some of the species of *Castilleja* are amongst the most beautiful of North American plants; we have seen fields of tall grasses in Utah ornamented with the orange and scarlet bracts of *C. liniariæfolia*, and the bleak ridges of Sierra Blanca in Colorado starred with the crimson bracts of *C. parviflora?* at an elevation of twelve thousand feet above the sea. The distribution of the genus is singular; North America is its head quarters, from the Arctic regions, exclusive of Greenland, to Mexico, between which parallels twenty-three species have been collected; of which one is widely distributed in northern Asia, and is the only representative of the genus in the Old World; one other inhabits the Andes of S. America, and one Brazil. None of the few hitherto imported have continued long under cultivation, possibly because, like their near allies *Euphrasia* and *Bartsia*, they are root-parasites in a young state; as with these latter, the *Castillejas* all turn black in drying.

Castilleja indivisa is one of the most brilliantly coloured of the genus, its bracts, which are orange-scarlet in a young state, in age become of an intense carmine red and last a

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very long time; in the case of the specimen here figured they were in beauty in the beginning of May, and are so still in this the last week of July, in the border of the rock-work of Kew. Mr. Thompson, of Ipswich, who sent the plant to Kew, observes that it seems easy to raise and to rear, that it was grown under glass, and that the colour of the bracts would deepen out of doors (which has been the case). It is a native of Texas, and described by A. Gray as a winter annual, flowering in spring without the survival of the radical leaves.

Descr. An erect nearly simple pubescent and viscid annual or biennial, six to twelve inches high. *Leaves* one to two inches long, suberect, clothing the stem, sessile, oblong or linear-oblong, obtuse or subacute, undulate, with a few irregular teeth, green, the upper with red margins towards the tip. *Spike* dense-flowered, at length elongating; bracts spreading, three fourths to one inch long, green at the base, then orange with a rounded spreading scarlet limb which becomes deep carmine later on, quite entire or rarely toothed or lobed. *Flowers* an inch long, sessile. *Calyx* with a slender curved tube, dilated above and slit half way down behind and rather less before; divisions 2-lobed, lobes truncate retuse. *Corolla* not much exserted from the calyx, pale straw-coloured; tube long, slender, curved at the base; upper lip shortly ovate, truncate, pubescent above; lower lip of three minute green obcordate lobes. *Anthers* yellow, a little exserted.—*J. D. H.*

Fig. 1, Flower; 2, mouth of corolla; longitudinal section of corolla showing the stamen and pistil;—*all enlarged.*

W.W.S del J.N.Fitch Lith

Vincent Brooks Day & Son Lith

Tab. 6377.

ALOE Cooperi.

Native of Cape Colony and Natal.

Nat. Ord. Liliaceæ.—Tribe Aloineæ.

Genus Aloe, *Linn.* (*Kunth, Enum.* vol. iv. p. 492).

Aloe *Cooperi;* acaulis, foliis rudimentariis 3–4 lanceolatis membranaceis, productis 6–8 distichis lineari-subulatis basi dilatatis suberectis chartaceis albo maculatis margine cartilagineis dentibus minutis corneis præditis, pedunculo simplici pedali vel sesquepedali foliis paucis parvis bracteiformibus præditis, floribus 12–25 in racemum corymbosum dispositis, bracteis magnis lanceolatis, pedicellis inferioribus flore æquilongis, perianthii cylindrici rubro-lutei tubo campanulato, segmentis æqualibus lanceolatis superne viridibus, genitalibus inclusis, capsulæ valvis lanceolatis.

A. Cooperi, *Baker in Gard. Chron.* 1874, p. 628.

By the thin firm texture of their suberect long-tapering leaves, this species and *A. myriacantha* differ conspicuously from all the other Aloes in cultivation. The present plant was discovered by Burchell in the year 1814 in the neighbourhood of Uitenhage, flowering in January and February. It was refound in 1862 by Mr. Thomas Cooper on grassy plains in Natal, and brought by him to this country in a living state. We have had it for some time at Kew, but it has not yet flowered with us. The drawing was made by Mr. Wilson Saunders from a plant that flowered at Reigate.

Descr. Acaulescent, the rosette surrounded by three or four lanceolate membranous rudimentary leaves. Produced *leaves* six or eight, distichous, suberect, linear-subulate from a dilated deltoid clasping base, tapering to a long point, a foot or more long, deeply channeled down the face, acutely keeled down the back, firm, and hardly at all fleshy in texture, green, spotted with white, especially in the lower part, furnished with a narrow pale horny border, and copious spreading minute linear teeth, which are larger towards the base of the leaf. *Peduncle* stout, terete, a foot or a foot and a half long,

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bearing a few small lanceolate-deltoid bract-like leaves in the upper part. *Flowers* twelve to twenty-five, arranged in a dense simple subcorymbose raceme; pedicels ascending, the lower ones above an inch long; bracts large, persistent, lanceolate, acuminate. *Perianth* tubular, reddish-yellow, with a green tip, an inch and a quarter or an inch and a half long; tube very short, campanulate; segments equal, lanceolate. *Stamens* and *style* included. *Capsule* about an inch long, with three acute firm lanceolate valves.—*J. G. Baker.*

Figs. 1 and 2, portion of a leaf; 3, a single flower with its pedicel and bract; 4, a flower in a later stage; 5, inner and outer segments of the perianth; 6, a flower with the segments of the perianth cut away; 7, a single stamen; 8, style and stigma:—all *life-size.*

W. G. S. del. J. N. Fitch Lith.

Vincent Brooks Day & Son Lith.

Tab. 6378.

GILIA Brandegei.

Native of Colorado.

Nat. Ord. Polemoniaceæ.

Genus Gilia, *Ruiz and Pav.* (*Benth. and Hook, f. Gen. Plant.* v. ii. p. 822).

Gilia (*Eugilia*) *Brandegei;* glanduloso-pilosa, e basi ramosa, caulibus erectis simplicibus, foliis alternis radicalibus lineari-elongatis pinnatisectis segmentis elliptico-ovatis subacutis integris v. 2–partitis et quasi 4–natim verticillatis, floribus thyrsoideo-spicatis, bracteis inferioribus foliaceis superioribus 3–fidis v. laciniatis, calycis tubulosi segmentis linearibus, corollæ stramineæ tubo calyce duplo longiore gracili superne lente dilatato, limbi plani lobis brevibus rotundatis apiculatis, filamentis brevibus rectis fauce corollæ insertis, antheris didymis, stigmate 3–fido.

G. Brandegei, *Gray in Proc. Amer. Acad.* v. xi. p. 85; *Synopt. Fl. N. Amer.* v. ii. p. 149.

This very remarkable plant tends to unite the otherwise dissimilar genera *Gilia* and *Polemonium*, having the straight glabrous filaments of the former, with the habit of the latter; whilst in the colour of the flower, it differs from both. It it an exceedingly rare plant, discovered by the very intelligent and energetic collector whose name it bears, on perpendicular rocks at the source of the Rio Grande in the Rocky Mountains of S.W. Colorado. It was again found by Drs. Gray and Lamborn, very sparingly, on the Sierra Blanca, in Southern Colorado, in July, 1877, at an elevation of upwards of 12,000 feet; on which occasion I had the pleasure of seeing the living specimens, though I nowhere found the plant myself during the excursion on that mountain which I made with those gentlemen; they form the var. *Lamborni* of Gray (Synopt. Fl. l. c.), distinguished by its lurid yellowish or greenish flowers. I am indebted to Mr. Thompson, of Ipswich, for the specimen here figured, which he raised from Colorado seed and flowered in May of the present year.

Descr. Covered everywhere (corolla externally included) with glandular pubescence, tufted, erect; stems six to eight

inches high. *Leaves* crowded at the base of the stems, few and alternate above, four to six inches long, narrow linear in outline, pinnatisect; segments one-sixth to one-fourth of an inch long, spreading, elliptic, entire or bipartite, when the segments appear as if whorled in fours, quite entire, subacute; stem-leaves with fewer and narrower segments. *Flowers* one to one and a quarter inch long, in loose thyrsiform racemes, sessile or the lower pedicelled, suberect, upper crowded, lower distant; lower bracts foliaceous longer than the flowers, upper reduced and tripartite or trifid. *Calyx* cylindric; five-cleft nearly to the base; segments narrowly linear, acuminate. *Corolla* pale primrose or straw-coloured, tube slender, almost twice as long as the calyx, somewhat dilated upwards; limb nearly flat, of five short rounded apiculate lobes. *Stamens* inserted on the throat of the corolla, filaments short, suberect, glabrous; anthers small, didymous. *Ovary* subglobose; style very slender, straight, glabrous, with three short slender awns at the tip; ovules few.—*J. D. H.*

Fig. 1, Bract and longitudinal section of flower:—*enlarged.*

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2

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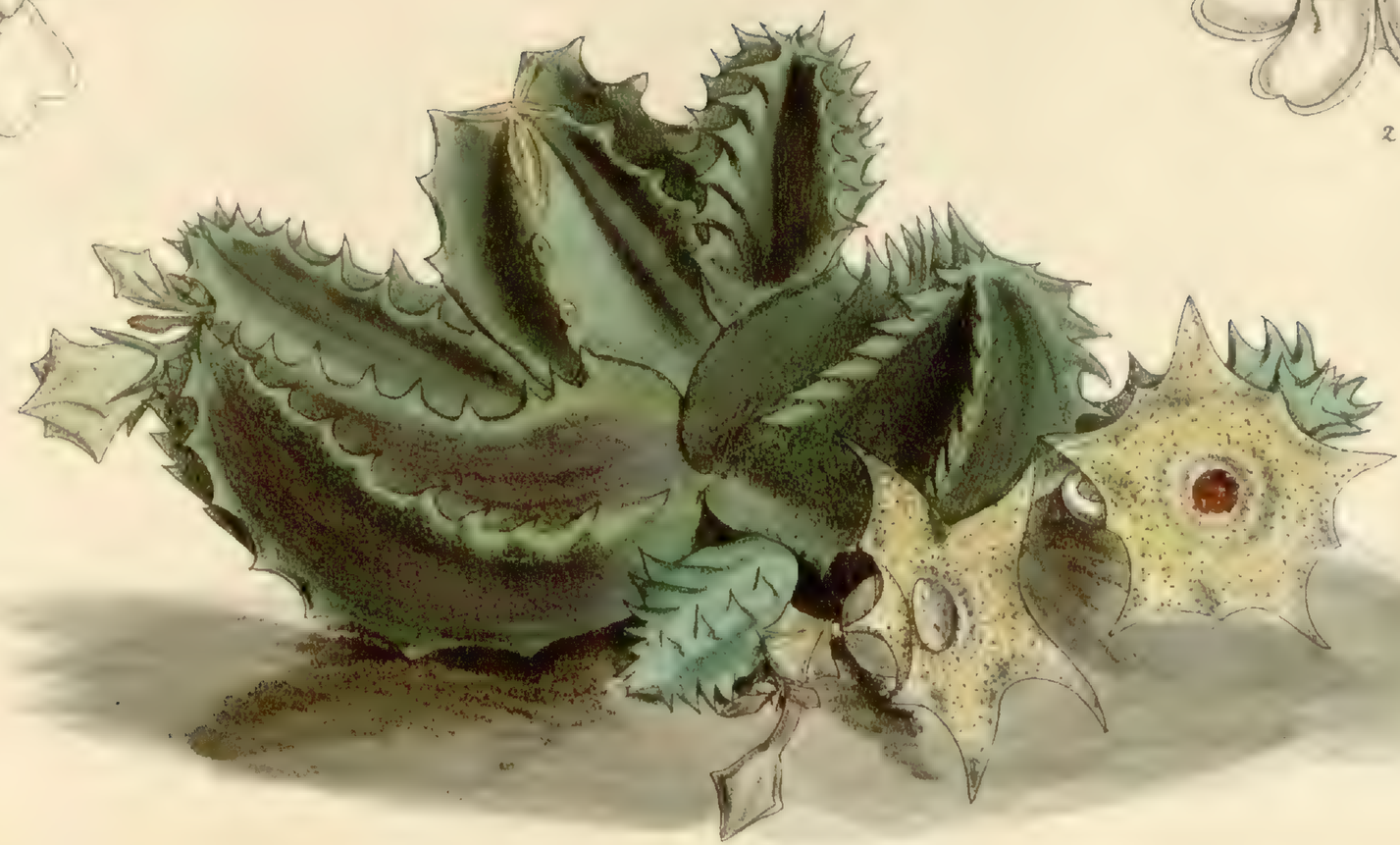

N. S. B. del J. N. Fitch Lith.

Vincent Brooks Day & Son Imp

TAB. 6379.

HUERNIA BREVIROSTRIS.

Native of South Africa.

Nat. Ord. ASCLEPIADEÆ.—Tribe STAPELIEÆ.

Genus HUERNIA, *R. Br.* (*Benth. et Hook. f. Gen. Plant*, vol. ii. p. 784.)

HUERNIA *brevirostris;* humilis, cæspitosa, ramis crassis 4–5-angulatis, angulis acutis dentatis, floribus cymosis, cymis sessilibus ad mediam ramorum enatis, floribus 4–6, pedicellis glabris, lobis calycinis lanceolato-subulatis, corolla pallide sulphurea sanguineo-punctata, extus lævi intus minute papillata, tubo campanulato, limbo patentissimo diametro 1¼ poll., lobis deltoideis acuminatis, corona exteriore 5-loba velutino-atra, lobis rectangulis emarginatis, coronæ interioris lobis apice in cornua brevissime productis.

H. brevirostris, *N. E. Brown in Gardeners' Chronicle*, n. s. vii. p. 780.

A very pretty species of the interesting genus *Huernia*, a genus which for some unaccountable reason has never been adopted by horticulturists, although it is one of the most distinct in the tribe *Stapelieæ*, and which may always be recognised by the corolla having a distinct tube and a more or less spreading limb, with the genitalia seated at the bottom of the tube, the outer corona being quite sessile and more or less adnate to the bottom of corolla. Five species of *Huernia* have now been figured in the "Botanical Magazine," viz., *H. lentiginosa* (t. 506), *H. clavigera* (erroneously figured at t. 1661 as *H. campanulata*, and at t. 2401 as *H. barbata*), *H. campanulata* (t. 1227), *H. Hystrix* (t. 5751), and the present species. Most of these have been figured under the generic name of *Stapelia*, with the name *Huernia* placed in the synonymy. *H. brevirostris* is not closely allied to any other described species, and is well distinguished from all known to me by its very thick stems, hairless corolla, and the very short apices of the lobes of the inner corona; like

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several of its congeners it is almost scentless. It was discovered by Mr. Bolus on the dry, rocky hills of Ryneveld's Pass, near Graaff Reinet, in South Africa, at an altitude of 2700 ft., where it is tolerably common, and flowers in April. Our drawing was made from a plant sent to Kew by Mr. Bolus, which flowered in August, 1875.

Descr. Plant dwarf and cæspitose, glabrous. *Stems* two to three inches long, three-quarters to one inch thick, four- to five-angled; angles acute, acutely toothed. *Flowers* in four-to six-flowered sessile cymes, arising from about the middle or towards the base of the younger branches. *Pedicels* four to six lines long. *Calyx* five-parted; segments lanceolate-subulate acute, two to three lines long. *Carolla* one and a quarter inches in diameter, outside smooth, pale green, often tinged with purplish on the tube, the lobes darker, faintly spotted with minute purplish spots, and marked with three strong and two faint nerves or ribs; inside, the tube excepted, minutely papillate, the papillæ with a minute purple-red spot at the apex, some of those in the throat minutely bristle-pointed, otherwise quite glabrous, pale sulphur-yellow, covered with small blood-red spots; tube pinkish white, spotted with blood-red, the bottom entirely blood-red, smooth and shining; tube three lines deep, slightly constricted at the mouth, limb very spreading, the lobes deltoid acuminate recurving. *Outer corona* velvet-black, 5-lobed, lobes rectangular, emarginate. *Inner corona* of five lobes, purplish, spotted in the upper part with yellowish, their apices very shortly produced, not more than half a line long.—*N. E. Brown.*

Fig. 1, Corona seen from above; 2, corona, side view; 3, anther and lobe of inner corona, detached:—*all enlarged 7 diameters.*

W W S del. J.N Fitch lith.
Brooks Day & Son imp.

Tab. 6380.

MARICA BRACHYPUS.

Native of the West Indies.

Nat. Ord. Iridaceæ.—Tribe Euirideæ.

Genus Marica, *Ker.*; (*Baker in Journ. Linn. Soc.* vol. xvi. p. 149).

Marica *brachypus*; foliis distichis ensiformibus saturate viridibus sesquipedalibus, floribus 5-6 in glomerulum unicum prope basin scapi impositum aggregatis, spathæ valvis magnis firmis navicularibus, pedicellis spathæ valvis demum æquilongis, perianthii lutei segmentis inferne rubro-brunneo maculatis, exterioribus multo majoribus planis oblongis, interioribus panduriformibus convolutis, antheris stigmatibus agglutinatis filamento æquilongis, stigmatibus petaloideis citrinis apice longe tricuspidatis.

M. brachypus, *Baker in Journ. Linn. Soc.* vol. xvi. p. 150.

Cypella brachypus, *Baker in Gard. Chron.* 1876, p. 138.

This is a new *Marica* very like the old well-known *M. Northiana* (Bot. Mag. t. 654) in general habit, but with yellow flowers produced low down upon the flattened leaf-like peduncle. I disagree with Dr. Klatt is using the name *Cypella* for this genus. *Cypella* was founded by Herbert upon the curious hardy bulbous plant from Buenos Ayres, which was originally figured in 'Bot. Mag.' t. 2599 under the name of *Tigridia Herbertiana*, now common in gardens, and afterwards called by Tenore *Polia bonariensis*. This is a good genus, and to transfer the name to these very different rhizomatous plants with flattened scapes can only create confusion. The present plant was imported by Mr. Wilson Saunders, from Trinidad, about the year 1871, and presented by him to the Royal Gardens several years later. With us it flowers in August, and requires stove-treatment.

Descr. *Rootstock* stout, vertical. *Leaves* six or eight in a tuft, bright green, ensiform, firm in texture, a foot and a half long, an inch or an inch and a half broad. *Scape* similar to the leaves, producing a few inches above its base a single cluster, which contains five or six flowers, which

open in succession. *Spathe-valves* acutely keeled, firm in texture, three or four inches long; pedicels finally as long as the spathe-valves. *Flowers* fugitive, bright yellow; segments of both the inner and outer rows furnished with horizontal bars of red brown near the base; outer segments oblong, flat, an inch and a half long; inner segments about half as long, panduriform, with an abruptly reflexed tip. *Stamens* erect; anthers about as long as the filaments, adhering to the stigmas. *Stigmas* bright yellow, petaloid, cuneate, with three erect linear cusps.—*J. G. Baker.*

Fig. 1, An outer segment of the perianth; 2, an inner segment of the perianth, seen from the back; 3, the same, seen laterally, *all three life-size*; 4, the stamens; style, and stigmas: *enlarged.*

H.T.D. del

Vincent Brooks Day & Son Lith

Tab. 6381.

CRINUM Macowani.

Native of Cape Colony.

Nat Ord. Amaryllidaceæ.—Tribe Crineæ.

Genus Crinum, *Linn.* (*Kunth, Enum.* vol. v. p. 547.)

Crinum *Macowani*: bulbo magno collo elongato, foliis 12–15 patulis flaccidis late loratis acutis viridibus 3–4-pedalibus margine scabris, scapo valido 3–4-pedali, spathæ valvis maximis, umbellis 12–15-floris, pedicellis 2–3-poll. longis, perianthii tubo viridulo curvato 3–4-pollicari, limbi pallide rubri horizontalis segmentis oblongis acutis tubo æquilongis dorso haud vittatis, genitalibus declinatis limbo vix brevioribus.

C. Macowani, *Baker in Gard. Chron.* 1878, p. 298.

This fine new Crinum from the Cape closely resembles some of the forms of the old Asiatic *C. latifolium* of Linnæus with delicate blush-coloured flowers, especially that figured in the Botanical Register, Tab. 1297, which was regarded by Roxburgh as the type of the Linnean species. *C. latifolium* and *zeylanicum* were regarded by Herbert as varieties of one species, which he called *C. ornatum*, which is widely distributed through the tropical and subtropical zones of the Old World. From all the forms of this, our present plant may be known by its long pedicels and very large spathe-valves. Mr. Macowan gathered it wild many years ago in No-man's Land, near the south-western frontier of Natal, and and from thence brought bulbs into cultivation. We have had it growing for some time in the Palm-house at Kew, and the drawing was made from a plant that flowered there this present spring.

Descr. Bulb reaching a diameter of nine or ten inches, sheathed with brown tunics and produced into a neck nearly a foot long below the rosette of leaves. *Leaves* twelve or fifteen to a rosette, spreading, lorate, bright green, thin and rather fleshy in texture, reaching a length of three or four

feet, three or four inches broad, narrowed gradually to an acute point, the edge narrowly cartilaginous and obscurely denticulate. *Scape* stout, lateral, green, three or four feet long, slightly compressed. Outer spathe-valves lanceolate, reaching a length of five or six inches; bracteoles also very long, linear-filiform. Umbel ten to fifteen-flowered; pedicels reaching a length of two or three inches. Ovary green, oblong, under an inch long at the flowering time; tube curved, greenish, three or four inches long; limb horizontal, permanently funnel-shaped, as long as the tube; segments oblong, acute, pale pink, without any deeper-coloured dorsal band. Filaments contiguous, declinate, a little shorter than the perianth-segments; anthers linear. *Style* parallel with the filaments, not exserted.—*J. G. Baker*.

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H T D del. C N Fitch Lith

Vincent Brooks Day & Son Imp

Tab. 6382.

RUELLIA acutangula.

Native of Brazil.

Nat. Ord. Acanthaceæ.—Tribe Ruellieæ.

Genus Ruellia, *Linn.*; (*Benth. et Hook. f. Gen. Plant*, vol. ii. p. 1077.)

Ruellia (Arrhostoxylum) *acutangula*; **herba elata v. frutex, glabra v. hirsuta, ramis 4-gonis, foliis elliptico-ovatis acuminatis nervosis basi in petiolum angustatis, cymis erectis glanduloso-pubescentibus, bracteolis oblongo-lanceolatis, calycis teretiusculi segmentis obtusis coriaceis integerrimis, corollæ aurantiaco-coccineæ ore flavo, tubo lente curvo pollicari, limbi 2-poll. diametro lobis oblongis apice rotundatis, staminibus exsertis.**

R. acutangula, *Nees in Mart. Herb. Fl. Bras. n.* 233, *in Flora*, 1838, vol. ii. p. 61.

Arrhostoxylum acutangulum, *Nees in Mart. Flor. Bras. Acanth.* p. 58.

Pedicularis sceptrum-marianum, *Vellozo, Flor. Flum.* iii. t. 104.

A native of shady forests in Brazil, in the neighbourhood of Rio de Janeiro and elsewhere; from whence it was introduced into cultivation by Mr. Bull, with whom it flowered in May of the present year. It is one of the handsomest species hitherto figured of the splendid genus to which it belongs, and rivals the *R. macrophylla* of our tab. 4448 (Stemonacanthus). The genus *Arrhostoxylum*, to which Nees latterly referred this and many other allied *Acanthaceæ*, has been reduced to *Ruellia* by Bentham in the Genera Plantarum; it contains many Brazilian species. The figure of *R. acutangula*, in Vellozo's 'Flora Fluminensis,' is very characteristic, though rough; in it the lower leaves are represented as ovate and rounded at the base, the upper are exactly as in our plant. Nees describes the species as either glabrous or hirsute, and the capsule as 12-seeded.

Descr. A large herb or undershrub, glabrous or hirsute; erect, branched. *Branches* obtusely four-angled, stout, green, most hairy in the hollowed faces between the angles. *Leaves*

five to eight inches long, elliptic-ovate, acuminate, narrowed into the rather stout or slender petiole, along whose sides the blade is decurrent, many-nerved, the nerves sunk in the surface and connected by cross-nervules, deep green. *Peduncles* axillary, four to six inches long, usually more or less glandular-hairy, four-angled, erect, rigid, dichotomously branched with a flower in the forks; branches strict, divaricating. *Flowers* sessile; bracts elliptic-lanceolate, caducous. *Calyx* almost cylindric, one half an inch long; segments linear-oblong, obtuse, glandular-pubescent, green. *Corolla-tube* one inch long, slightly curved, subinflated; limb two inches in diameter, bright orange-scarlet, yellow at the throat; lobes subequal, oblong, rounded at the apex. *Stamens* exserted, filaments very slender, united in pairs (a short with a long one) for half their length, pubescent at the very base; anthers oblong. *Style* very slender, bifid at the apex; anterior lobe linear revolute, posterior short, much broader, ovate-lanceolate, slightly recurved.—*J. D. H.*

Fig. 1, Longitudinal section of flower; 2, short and long stamens; 3, ovary:—*all enlarged.*

2.

3

H.T.D. del. J.N.Fitch Lith.

Vincent Brooks Day & Son Imp.

Tab. 6383.

DENDROBIUM Brymerianum.

Native of Burma.

Nat. Ord. Orchideæ.—Tribe Dendrobieæ.

Genus Dendrobium, *Swartz* (*Lindl. Gen. & Sp. Orchid.* p. 74).

Dendrobium *Brymerianum;* caulibus teretiusculis leviter sulcatis supra basin incrassatis, foliis lanceolatis acuminatis, racemo laterali paucifloro, bracteis triangulari-ovatis, floribus 3-poll. diam. aureis, sepalis ovato-lanceolatis subacutis, petalis æquilongis lineari-oblongis obtusiusculis, labello explanato circumscriptione late ovato-triangulari v. cordato obtuso disco subpaleaceo-papilloso, lobis lateralibus brevibus fimbriato-ciliatis ciliis subulatis margine ciliolatis, lobo-terminali ovato fimbriis ipso longioribus dichotome ramosis ciliolatis elegantissime circumdato, columna brevi, anthera 3-loba.

D. Brymerianum, *Reichb. f. in Gard. Chron.* 1875, part 2, p, 323, and 1876, p. 366.

This is certainly the most beautiful of the orange-coloured Dendrobes, and the most singular; nothing can exceed the elegance of the long-branched fimbriation of the lip, and the flowers themselves are the largest of the section. Reichenbach first described it as a connecting link between the sections *Stachyobium* and *Dendrocoryne.* One of its nearest figured allies is the well-known *D. fimbriatum* (tab. 4160), from which it widely differs in the narrower longer sepals and petals, and in the form and enormously long fimbriation of the lip. Dr. Reichenbach further remarks that all the six flowers he examined had a strong tendency to become triandrous, which seems to be the case in our specimen also; he describes the bracts as half as long as the pedicel and ovary, which is not the case in the specimen here figured.

D. Brymerianum was dedicated by its describer to W. E. Brymer, Esq., M.P., of Islington House, Dorchester, who first flowered it in 1875, the plant having, it is supposed, been one of Mr. Lowe's importations from Burma. It has since then been flowered in great perfection by Mr. Salt, of Fernichurch, Shiply, and of Messrs. Veitch, to whom I am indebted for the opportunity of having it figured.

Descr. *Stems* a foot high and upwards, terete, faintly

grooved, swollen for the space of four inches, at some inches above the base, to double or treble their diameter elsewhere. *Leaves* distichous, four to five inches long, lanceolate, acuminate, many-nerved, rather stiff. *Raceme* lateral, toward the summit of the stem, few-flowered; bracts one half to three fourths inches long, triangular-ovate or oblong; pedicel with ovary two inches long. *Flowers* three inches in diameter, golden yellow, the side-lobes of the lip almost orange. *Sepals* ovate-lanceolate, subacute, straight. *Petals* narrower, linear-oblong, rather obtuse. *Lip* triangular-cordate in outline; the short lateral lobes turned up and fimbriated with short ciliolate flexuose processes; middle lobe ovate, obtuse, its very broad base gradually dilating into the lateral lobes, its margins ornamented with dichotomously branched flexuose pendent ciliolate processes, almost as long as the lip itself; disk of lip papillose with short subulate processes. *Column* very short; anther-cap 3-lobed.—*J. D. H.*

Fig. 1, Lip; 2, front; and 3, lateral view of the column:—*all enlarged.*

H.T.D del. J.Nugent Fitch. Lith.

Vincent Brooks Day & Son Imp

Tab. 6384.

SAXIFRAGA Maweana.

Native of Morocco.

Nat. Ord. Saxifragaceæ.—Tribe Saxifrageæ.

Genus Saxifraga, *Linn.* (*Benth. et Hook. f. Gen. Plant.* vol. i. p. 635).

Saxifraga *Maweana;* cæspitosa, sparse laxe patentim pilosa, surculis floriferis superne erectis nudis v. paucifoliatis, foliis longe petiolatis reniformi-orbiculatis 3–5 lobis, superioribus in axillis gemmas incrassatas stipitatas gerentibus, lobis obtuse 3–5-lobulatis petiolo lato, caulinis lineari-oblongis, panicula longe et laxe ramosa sparsiflora glanduloso-pilosa floribus ¾ poll. diam. pedicellatis, calycis segmentis ovato-oblongis apice rotundatis tubum subsphericum excedentibus, petalis albis obovato-spathulatis, stylis erectis apicibus recurvis.

S. Maweana, *Baker in Gard. Chron.* 1871, p. 1355, (*cum Ic. Xylog.; Ball, Spicileg. Fl. Marocc.* 448.

The presence of an Alpine looking Saxifrage of the group of our English and Scotch *S. hypnoides*, and with even larger flowers than that plant has, was scarcely to be looked for in the African coasts, for though the said group is essentially West European, extending from Scotland to the greater Atlas, it is to a great extent a moisture-loving one. *S. Maweana* was discovered, in 1827, by the late eminent botanist, P. B. Webb, of Paris, in its only known habitat, rocks of the Beni Hosmar range of mountains opposite Tetuan, at about 2000 feet elevation, and by whom it was regarded as a form of *S. globulifera*, nor was it found to be an unpublished species till it was again gathered by Mr. Maw in 1869, and by him introduced into cultivation. On being referred to Mr. Baker, it was immediately recognised as very distinct from any of the *Dactyloides* group, and named in honour of its re-discoverer. Latterly it has been fully described in the Spicilegium Floræ Maroccanæ, by Mr. Ball, in company with whom and Mr. Maw, I had the pleasure of gathering it in its original habitat in 1871. The nearest affinity of *S. Maweana* is, as Mr. Baker has pointed out, the *S. globulifera*, Desf., a species which extends from the mountains of southern Spain to those of both

the Algerian and greater Atlas, but which has not been met with on Beni Hosmar, and which differs in its much smaller size, cuneate leaves, short, more ovate calyx-lobes, and comparatively minute flowers. *S. Mawcana* has for the last few years been a well-known and highly-prized rock-plant, flowering in May and June; our specimen is drawn from a Kew plant.

Descr. Forming large rather loose tufts, laxly hairy all over with soft sometimes glandular spreading hairs, especially on the inflorescence. *Leaves* with the linear flattened grooved petiole one to two and a half inches long, lower laxly rosulate, blade orbicular-reniform 3-cleft to the middle or with the lateral lobes cleft when they are 5-cleft; lobes obtusely 3–5-lobulate or toothed, mid-lobe cuneate-obovate; upper radical leaves cuneate, 3-fid. with pedicelled thickened leaf-buds in their axils. *Peduncles* four to six inches long, erect, loosely paniculately branched; bracts linear. Flowers three-quarters of an inch in diameter, white, shortly pedicelled. *Calyx* glandular; tube almost spherical; lobes longer than the tube, oblong, rounded at the tip. *Petals* obovate-spathulate, rounded at the tip, veins white. *Stamens* with yellow anthers. *Styles* erect with recurved stigmatic tips, half as long as the petals.—*J. D. H.*

Fig. 1, Flower cut longitudinally; 2, petal; 3, styles:—*all enlarged.*

H.T.D. del. J.Nugent Fitch, Lith.

Vincent Brooks, Day & Son, Imp.

Tab. 6385.

FRITILLARIA Hookeri.

Native of Sikkim.

Nat. Ord. Liliaceæ.—Tribe Tulipeæ.

Genus Fritillaria, *Linn.* (*Baker in Journ. Linn. Soc.* vol. xiv. p. 251).

Fritillaria (Notholirion) *Hookeri;* bulbo ovoideo tunicis brunneis membranaceis, caule 1–2-pedali, foliis 6–10 linearibus sessilibus sparsis alternis, floribus 3–8 in racemum laxum dispositis, bracteis solitariis linearibus, pedicellis brevibus cernuis, perianthii infundibularis roseo-lilacini pollicaris vel sesquipollicaris segmentis obtusis basi obscure foveolatis interioribus oblanceolato-oblongis exterioribus oblanceolatis, staminibus perianthio paulo brevioribus, filamentis filiformibus, antheris parvis oblongis, stylo apice stigmatoso tricuspidato, ramis subulatis falcatis, capsulis obovoideo-oblongis obtuse angulatis apice umbilicatis, seminibus crebris discoideis.

F. (Notholirion) Hookeri, *Baker in Journ. Linn. Soc.* vol. xiv. p. 269.

Lilium (Notholirion) Hookeri, *Baker in Gard. Chron.* 1871, p. 201.

The present species forms with *Fritillaria macrophylla* of D. Don (better known under Wallich's name of *Lilium roseum*, under which it is figured, Bot. Mag. t. 4725, or Lindley's of *Lilium Thomsonianum*) a group intermediate between the Lilies and the Fritillaries, but in my view with the balance of character leaning decidedly in favour of the latter. It is a much less robust plant than *F. macrophylla*, and so far as at present known is restricted to the Lachong valley in Sikkim, where it grows at an elevation of nine thousand or ten thousand feet above sea-level. It was first gathered by Sir Joseph Hooker in 1849. For its introduction into cultivation we are indebted to the recent visit of Mr. Elwes, from one of whose bulbs presented to the Royal Gardens, which flowered in the summer of the present year, the drawing was made.

Descr. *Bulb* ovoid, about an inch in diameter, with a firm brown membranous tunic and a dense tuft of slender root-fibres. *Stem* erect, glabrous, terete, one to two feet in length,

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including the inflorescence. *Leaves* six to ten below the inflorescence, linear, distant, sessile, alternate, the lower five or six inches long, the upper ones growing gradually smaller. *Flowers* three to eight in a lax *raceme*, which occupies about a third of the whole stem, on short cernuous pedicels, bracteated each by a solitary reduced linear leaf; upper flowers about an inch, lower an inch and a half long. *Perianth* funnel-shaped, pale rose-lilac, the inner segments oblanceolate-oblong, three-eighths to half an inch broad above the middle, the outer three narrower, all furnished at the base inside with an obscure roundish foveole. *Stamens* rather declinate, nearly as long as the perianth-segments; filaments filiform; anthers small, purplish, oblong. *Ovary* clavate; style cleft at the tip into three falcate subulate stigmatose forks. *Capsule* small, obovoid-oblong, shallowly sulcate between the cells, umbilicate at the apex. *Seeds* densely packed, discoid, bright brown.—*J. G. Baker.*

Fig. 1, Inner segment of the perianth:—*enlarged.*

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M. S. del. J. Nugent Fitch Lith.

Vincent Brooks Day & Son Imp.

Tab. 6386.

HEDYSARUM Mackenzii.

Native of North and Arctic America.

Nat. Ord. Leguminosæ.—Tribe Hedysareæ.

Genus Hedysarum, *Linn.* (*Benth. et Hook. f. Gen. Plant.* vol. i. p. 570).

Hedysarum *Mackenzii;* herbacea, gracilis, ramosus, ramis decumbentibus dein ascendentibus teretibus foliisque pube appressa subgriseis, foliolis 5–7-jugis cum impari ellipticis v. lineari-oblongis obtusis retusis v. subacutis enerviis, stipulis basi connatis subulatis, racemis longe stricte pedunculatis multifloris, floribus remotiusculis breviter pedicellatis, bracteis minutis deciduis, calycis segmentis lanceolato subulatis corolla rosea ter brevioribus, vexillo obovato breviter 2-lobo, alis lineari-oblongis carina truncata brevioribus, legumine 4–7-articulato, articulis orbicularibus compressis grosse venosis.

H. Mackenzii, *Richardson in Appendix to Franklin's Voy. ed.* 2, p. 28; *Hook Fl. Bor. Am.* vol. i. p. 155; *Torr. & Gr. Fl. N. Am.* vol. i. p. 357; *Porter & Coulter, Synops. Fl. Colorado,* p. 31.

H. canescens, *Nutt.; Torr. & Gr. l. c.*

H. dasycarpum, *Turcz.; Ledeb. Fl. Ross.* i. 706.

A very beautiful herb or almost undershrub, conspicuous for the abundance of its bright rose-coloured flowers disposed in long racemes. It was discovered by Sir John Richardson during Franklin's arduous and perilous journey to the shores of the American polar ocean in 1823, along the whole shores of which it stretches, and since that period it has been found on the Rocky Mountains as far south as the sources of the Saskatchewan River, in Utah and Colerado, and in East Siberia at Ajan on the Sea of Ochotsk. Like all other plants which have a wide distribution in longitude from the Arctic regions southward, it varies greatly in stature, ramification, and in the size of the flower; the polar specimens being but a few inches high, with fewer leaves, fewer pinnules on them, and flowers half as large again as those of the specimen here figured. This state of it would be a most desirable acquisition for the Rock-work Garden.

Very closely allied to *H. Mackenzii* is the beautiful *H.*

boreale, Nutt., which is also Arctic American, but does not extend so far to the southward along the Rocky Mountains; it extends, however, further to the west, inhabiting the arctic regions of Asia, as also further east, to Northern Canada and the Alleghany Mountains. It is very similar to *H. Mackenzii*, but has distinctly nerved leaves and shorter calyx segments; it has been in cultivation at Kew.

H. Mackenzii flowers annually in the Herbaceous Ground at Kew in July and August.

Descr. A herb with perennial rootstock, or slender undershrub, clothed with appressed minute strict grey hairs with roughened surfaces; branches very slender, decumbent, ascending and straggling. *Leaves* four to six inches long, petiole very slender, leaflets five to seven pairs with an odd one, hardly petiolulate, one half to one inch long, oblong or obovate- or linear-oblong, rounded or retuse at the tip, nerveless; stipules minute, membranous, subulate-lanceolate, usually united below. *Raceme* slender, usually long-peduncled, strict, many-flowered. *Flowers* scattered, three-fourths to one inch long, horizontal or ascending or drooping, rose-purple, pedicels short; bracts minute, deciduous. *Calyx* one-sixth to one-fourth of an inch long, silvery-hoary, tube short, rounded at the base; segments subulate-lanceolate. *Standard* obovate, notched, reflexed beyond the middle; wings linear-oblong, obtuse, shorter than the keel, which is obliquely truncate. *Pod* one to two inches long, of four to seven orbicular flattened deeply-veined joints with crenate margins.

J. D. H.

Figs. 1 and 2, Standards; 3, wings and keel; 4, calyx and stamens; 5 and 6, anthers; 7, calyx and ovary; 8, pod; 9, the same laid open :—*all but* 8 *and* 9 *enlarged.*

E.A.Ormerod del. J.N.Fitch Lith.

Vincent Brooks, Day & Son, Lith.

Tab. 6387.

ARISTOLOCHIA TRILOBATA.

Native of the West Indies and Brazil.

Nat. Ord. Aristolochiaceæ.—Tribe Aristolochieæ.

Genus Aristolochia, *Linn.* (*Duchartre in A. DC. Prodr.* vol. xv. *pars* i. p. 432.

Aristolochia (Gymnolobus) *trilobata*; caulibus gracillimis scandentibus ramosis, foliis latis trilobis v. tripartitis rarius subintegris basi rotundatis v. cordatis sinubus rotundatis lobis breviter oblongis omnibus apice rotundatis v. intermedio acuto, supra glaberrimis subtus molliter pubescentibus nervis glabris, petiolo longiusculo, pseudostipulis reniformibus v. ovato-cordatis, perianthii utriculo basi 6-calcarato amplo ovoideo v. oblongo, tubo paulo longiore cylindraceo, ore rotundato vix ampliato marginibus patenti-recurvis, fauce patentim piloso, labio parvo ovato lateribus reflexis basi non cordato in caudam perianthio toto bis terve longiorem desinente.

A. trilobata, *Linn.*; *Plum. Ic. Misc.* vol. i, *t.* 43, *f.* 2; *Jacq. Eclog.* vol. i., p. 43, t. 26; *Martius Fl. Bras.* t, 90; *Duchartre in A. DC. l. c.* 444; *Griseb. Fl. Brit., W. Ind.* p. 299; *Flor. des Serres*, t. 1402.

A. trifida, *Lamk. Encycl.* vol. i. p. 251.

A. Caracasana, *Spreng. Syst. Veg.* vol. iii. p. 753.

Howardia trifida, *Klotzsch in Monatsb. Berl. Akad.* 1853, p. 617.

H. trolobata, *Klotzsch, l. c.*

Two species of *Aristolochia* from South America, characterised by the wonderful tail at the tip of the perianth, and curious spurs at its base, have been cultivated in England, and confounded with a third (*A. caudata*), which has not hitherto been introduced. These are, first, the old *A. trilobata* of Linnæus's first edition of the Species Plantarum, taken up from Plumier's Catalogue which was published in the beginning of last century; of this, our plate is the first representation from cultivated specimens. Secondly, *A. macroura*, Gomez, a Brazilian species, figured under the name of *A. trilobata* in the Botanical Register, t. 1399, and under that of *A. caudata*, at t. 1453 of the same work, and at t. 3769 of the Botanical Magazine. The true *A. caudata*,

Linn., is a small-flowered species with no spurs at the base of the perianth, and a much shorter tail, it is a native of Hispaniola, and, as above stated, has never been in cultivation in so far as I know.

Aristolochia trilobata has an extended distribution, from Jamaica and many other West Indian Islands to Guiana, and to Bahia in Brazil, and as with so many other species of the genus, is said to be used by the negroes as a cure for snake bites. The drawing was kindly executed by Miss E. A. Ormerod, from a plant which flowered at Kew in July.

Descr. A very slender climber, with glabrous almost filiform branches, and scattered leaves of a bronze-green colour. *Leaves* very variable, very broadly ovate, or reniform-ovate, or orbicular in outline, two to four inches in diameter, more or less three-lobed, sometimes more than half way down, with obtuse, erect or spreading lobes, and rounded sinus between them, glabrous above, beneath clothed with a very firm pubescence; base truncate, rounded or cordate; nerves spreading from the tip of the petiole finely reticulate; petiole slender, about as long as the blade or shorter, often tortuous; stipular leaf orbicular, with revolute margins. *Flowers* pale dull green, mottled with brown, the terminal lobe and tail deep brown. *Peduncle* and very slender ovary together three to four inches long. *Perianth* variable in size; basal part oblong, one to two inches long, inflated, suddenly contracted at the base, and there furnished with six reflexed obtuse elongated conical spurs; tubular part as long as the basal or longer, sharply reflexed upon its cylindrical, with a circular expanded hairy mouth; bristly and spotted within with dark purple; lips reflexed; terminal lobe (like the operculum of a *Nepenthes*), curved over the mouth of the tube, broadly ovate with reflected sides, suddenly contracted into a twisted very slender tail about twice the length of the rest of the perianth. *Anthers* six to eight, united with the styles into a tubular eight-cleft cup with acute lobes. *Capsule* large, cylindric, two to four inches long.

Fig. 1, Dorsal view of perianth; 2, spurs at base of perianth: 3, column of anthers and stigmas; 4, longitudinal section of ditto:—*all but fig.* 1 *enlarged.*

2.

F.H.W. del. J.Nugent Fitch Lith

Vincent Brooks Day & Son Imp

Tab. 6388.

CŒLOGYNE (Pleione) Hookeriana.

Native of the Sikkim Himalaya.

Nat Ord. Orchideæ.—Tribe Malaxideæ.

Genus Cœlogyne, *Lindl.*: (*Lindl. Fol. Orchid. Cœlogyne*, sect. *Pleione*.

Cœlogyne (Pleione) *Hookeriana*; pseudobulbis nudis ovoideis lævibus, foliis synanthiis scapum superantibus elliptico-lanceolatis acuminatis plicatis, vaginis lævibus, bractea spathacea ovarium æquante, sepalis petalisque consimilibus, labello convoluto cylindraceo antice explanato apice retuso, marginibus erosis, disco lamellis 7 crinitis ornato, columna gracili, clinandrio cuneiformi angulis recurvis.

C. Hookeriana, *Lindl. l. c.* p. 14.

Dr. Lindley has well remarked in describing this species, that it differs from all its congeners of the *Pleione* group in leafing and flowering at the same time; I do not, however, understand his statement to the effect that it further differs in that "the parts of the flower do not taper to the base," for in this respect I see no difference between it and other *Pleiones*. There are certainly either two forms of this in the Sikkim mountains, or the lip affords a very variable character; of these forms I made drawings in Sikkim from wild specimens; one of them agrees admirably with that here given, but in the other the lip is not convolute into a cylinder for three-fourths of its length, and then expanded into a trumpet-shaped spotted mouth; but is more open from the base, like a coal-scuttle or scoop, and is rhomboid when spread open, and there is further no distinction between the lobes; and there are no spots. This last form occurred at a higher elevation (9–10,000 ft.) than the other, which grows at 7–8000 ft., and I have seen a specimen of it gathered by Jacquemont, No. 208, (2304 Herb. Paris) in the Western Himalaya. Dr. Lindley has included both the forms under the same name.

October 1st, 1878.

Cœlogyne Hookeriana is a spring flowering species, common in moist-mossy banks in Sikkim at the altitudes cited above. I am indebted for the accompanying drawing by Miss P. H. Woolward, to Mr. Elwes, who imported the plant from Sikkim, and flowered it in May of the present year.

Descr. Whole plant one to five inches high. *Pseudobulbs* one half to one inch long, ovoid, smooth, not grooved nor covered with a net work. *Sheaths* at the base of the scape quite smooth, appressed, finely grooved. *Leaf* solitary, appearing with the flower, membranous, one to two inches long, elliptic lanceolate, acuminate, finely plaited, deep bright green. *Scape* shorter than the leaf, slender, one-flowered. *Flower* two to two and a half inches across the petals, bright rose colour, except the pale lip, which is blotched at the apex with pale brown purple. *Sepals* and *petals* very variable in breadth, elliptic-lanceolate, acuminate, spreading. *Lip* as long as the sepals or longer, convolute and cylindric for as far as the lateral lobes extend, then expanded into a small green retuse terminal lobe that is almost continuous with the lateral; disk with seven slender crested lamellæ. *Column* quite free, very slender, expanded and cuneate at the tip, with acute lateral angles that are recurved.—*J. D. H.*

Fig. 1, Front, and 2, lateral view of the tip of the column and anther:—*both enlarged.*

Tab. 6389.

STACHYS Maweana.

Native of Marocco.

Nat. Ord. Labiatæ.—Tribe Stachydeæ.

Genus Stachys, *Linn.* (*Benth. et Hook. f. Gen. Plant*, vol. ii. p. 1208).

Stachys *Maweana ;* perennis, albo-lanata, caulibus adscendentibus robustis obtuse 4-gonis foliosis, foliis inter minoribus longe petiolatis ovato-cordatis subacutis grosse crenato-serratis bullatis, floralibus brevius petiolatis angustioribus basi acutis, verticillastris paucifloris, calycis tubuloso-campanulati dentibus triangulari-ovatis acutis vix mucronatis, corollæ stramineæ purpureo-maculatæ tubo calycem excedente, labio superiore brevi concavo integro, inferiore late obovato-oblongo lobis lateralibus angustis antice rotundatis intermedio rotundato, sinubus inter lobos angustis acutis, genitalibus glaberrimus, antherarum loculis divaricatis.

S. Maweana, *Ball Spicilej Flor. Marocc.* (*in Journ. Linn. Soc.* vol. xvi.) p. 626.

A tall branched "wound wort," conspicuous for its silvery hoary character. The genus to which it belongs (*Stachys*) contains above two hundred species, of which few are worthy of cultivation for ornament; and our object in selecting the present for publication was not so much for its silvery appearance or flowers as because, though named after an eminent horticulturist, it has been but imperfectly described by its author. In his 'Flora of Marocco,' Mr. Ball says that he has seen only an imperfect specimen, collected by Mr. Mawe between Sektana and Frouga in Southern Marocco, and of which he describes the leaves as cuneate at the base, the flowers large for the genus, and the corolla he suspects to be purple. Fortunately, Mr. Mawe considered the plant worthy of cultivation, and introduced it into his garden at Benthall Hall, where it flowered in the month of July, and afforded good specimens, from which the drawing now published was made. From this it will be seen that the leaves are really cordate at the base, and the flowers straw-coloured, with purple blotches on the lip.

October 1st, 1878.

Descr. A perennial rooted branched herb, clothed with soft spreading silvery white hairs. *Branches* obtusely four-angled, rather soft, a foot and more high. *Leaves* spreading, blade one inch long, ovate-cordate, subacute, deeply crenate-toothed, much raised between the impressed nerves, grey-green above; floral leaves equalling the flowers, narrower, shortly petioled or sessile, with cuneate bases; petiole of cauline leaves longer than the blade, stout, horizontal. *Flowers* in false whorls, collected into a narrow oblong obtuse leafy spike, very shortly pedicelled, few in each whorl; bracteoles inconspicuous. *Calyx* one fourth of an inch long, narrowly campanulate, woolly, with faint nerves; mouth oblique, with five triangular ovate acute but hardly mucronate teeth. *Corolla* one half an inch long, and as broad across the lips, softly hairy externally; tube rather longer than the calyx, with an obscure ring of hairs within half way up, pale straw-coloured, with purple blotches on the lower lip; upper lip small, concave, obtuse, arched; lower much larger, an oblong square in outline with rounded angles, and the narrow acute sinus between the lobes about half way between the base and tip; lateral lobes narrow, with rounded ends that hardly project laterally; terminal lobe nearly orbicular, retuse or emarginate. *Filaments* stout; anthers purple, cells short, divaricating. *Ovary* and style glabrous.—*J. D. H.*

Fig. 1, Flower; 2, calyx; 3, corolla laid open; 4, ovary:—*all enlarged.*

M.S. del J. Nugent Fitch Lith

Vincent Brooks Day & Son Imp

Tab. 6390.

VERONICA Traversii.

Native of New Zealand.

Nat. Ord. Scrophulariaceæ.—Tribe Digitaleæ.

Genus Veronica, *Linn.* (*Benth. et Hook. Gen. Plant.* vol. ii. p. 964.)

Veronica (Hebe) *Traversii;* frutex parvus, glaber, confertim ramosus, foliis approximatis uniformibus decussatis patentibus brevissime petiolatis elliptico-ovatis - lanceolatisve subacutis integerrimis supra canaliculatis subtus carinatis crasse coriaceis enerviis, racemis subterminalibus breviter pedunculatis gracilibus breviusculis densifloris, rachi pedicellisque brevibus puberulis, bracteis sepalisque oblongis obtusis ciliolatis, corollæ niveæ tubo sepala plus minusve superante, lobis subæqualibus late oblongis obtusis, filamentis robustis, capsula late ellipsoidea compressa glabra.

V. Traversii, *Hook. f. Handbook of New Zealand Flora*, p. 208; *Masters in Gard. Chron.* 1873, p. 1046.

This little shrub is a member of a group of New Zealand Veronicas allied to the *V. elliptica*, Forst. (Tab. 242), which are exceedingly difficult of discrimination, inhabit the Alps chiefly of the middle Island of New Zealand, and are singularly protean in habit, foliage, and inflorescence. Dr. Mueller in his work on the Vegetation of the Chatham Plants has indeed referred some fifteen of these to one species (to which he has applied the new name of *V. Forsteri*), an extreme view not likely to find favour with the New Zealand botanists; singularly enough he has not included under this aggregate species the *V. Traversii*, which is one of the commonest of them, and one of the most difficult to distinguish in all states. Whatever its specific value, there can be no doubt of its horticultural interest, for there is not a more beautiful object of the kind, than a well-grown plant of *V. Traversii*, which forms a symmetrical ball three to four feet in diameter, completely powdered with white flowers in midsummer.

V. Traversii is a native of the Alps of the middle Island of New Zealand, from Nelson to Otago, by margins of streams,

and at elevations of 3,000 to 5,500 feet; it has stood uninjured in the open air at Kew for several years, but it cannot be expected to withstand the occasional severe winters of this part of England; in the west and in Ireland it grows with great luxuriance, and is no doubt perfectly hardy. It flowers in the months of June, July, and August.

Descr. A glabrous bush, forming a round green ball two feet and upwards in diameter; branches strict, opposite, erect or ascending, cylindric, clothed densely with spreading leaves in four rows. *Leaves* one half to one inch long, decussate, horizontal, very uniform in size and form on the branches, petioled, elliptic-ovate or lanceolate, with quite entire cartilaginous margins, subacute at both ends, channelled above, keeled beneath, nerveless, rather pale green, hardy shining. *Racemes* subterminal, one to three inches long, shortly peduncled, cylindric or ovoid, obtuse, many-flowered; rachis slender, puberulous; bracts oblong, green, ciliolate, coriaceous, variable in size; pedicels very variable in length, sometimes evanescent. *Flowers* one third of an inch in diameter, snow-white. *Sepals* broadly oblong, erect, green, ciliolate, closely applied to the capsule, and half its length. *Corolla-tube* very variable, equalling or exceeding (rarely by twice their length) the sepals; lobes subequal, shortly oblong, concave, rounded at the tip. *Stamens* with stout exserted filaments, and oblong purple-brown anthers which are two-lobed at the base. *Capsule* one sixth of an inch long, broadly ellipsoid, compressed, twice as long as the sepals. *Seeds* pale, angular.—*J. D. H.*

Figs. 1 and 2, Flowers; 3, corolla laid open; 4 and 5, anthers; 6 and 7, calyx and capsule:—*all enlarged.*

1.

2.

5.

3

4.

M.S. del J.Nugent Fitch Lith

Vincent Brooks Day & Son Imp

Tab. 6391.

ANTIRRHINUM HISPANICUM.

Native of Spain.

Nat. Ord. Scrophularineæ.—Tribe Antirrhineæ.

Genus Antirrhinum, *Linn.* (*Benth. et Hook, f. Gen. Plant.* vol. ii. p. 934).

Antirrhinum (Antirrhinastrum) *hispanicum;* glanduloso-villosum, caule e basi tortuoso-ramoso, ramulis brevibus adscendentibus, foliis parvis breviter petiolatis plerumque alternis ovato- v. oblongo-lanceolatis subacutis v. obtusis, racemo interrupto paucifloro, floribus breviter pedicellatis, calycis segmentis ovatis v. ovato-oblongis acutis, corolla pollicari pubescente pallide purpurea, palato stramineo, capsula late ovoidea, seminibus rugosis.

A. hispanicum, *Chavanne Monogr.* p. 83; *Benth. in A. DC. Prod.* vol. x. p. 291; *Willk. & Lange, Fl. Hisp.* vol. ii. p. 584; *Boiss. & Reut. Pugill.* 1852, p. 81.

A. glutinosum, *Boiss. & Reut. l. c.* 82; *Willk. & Lange, l. c.*

A. glutinosum *var.* rupestre, *Willk. & Lange, l. c.*

A. rupestre, *Boiss. & Reut. l. c.; non Bourg. Pl. Esp.* 1851.

A. molle, *Boiss. partim.*

This dwarf species of Snap-dragon forms a small bushy herb, with copious large flowers of a very delicate colour, and has continued flowering for at least three months of the present year, whieh has been singularly favourable to the herbaeeous plants at Kew. It is a native of many parts of Spain, from the Pyrenees southwards, and is found on the walls of the Alhambra. It varies a little in habit, and in the form of the calyx-lobes, as is the case with other species of the genus; and I cannot, after a comparison of numerous specimens, regard *A. glutinosum* of Boissier and Reuter as anything but a form of it, which is quite indistinguishable in a dry state. Our plant was raised at Kew from seed sent by Mr. Thompson of Ipswich, as *A. rupestre*, Boiss. and Reuter, a species reduced by Willkomm and Lange in their "Flora Hispanica," to a variety of *A. glutinosum*. The *A. molle*, also a plant of Spain, which has been confounded with this, is a very different species, having short procumbent branches, and being copiously clothed with white woolly hairs.

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Descr. A small, much and rather tortuously branched herb, with a woody rootstock, copiously clothed with glandular hairs; branches ascending, a foot high and less, slender, flexuous, leafy. *Leaves* alternate, or sometimes a few opposite ones on the shoots, spreading and recurved, one-third to two-thirds of an inch long, ovate or ovate-oblong, or lanceolate, subacute or obtuse, glandular-pubescent on both surfaces, pale green; nerves very inconspicuous. *Flowers* suberect, an inch long, in short terminal flexuous racemes; pedicels one-sixth to one-fourth of an inch long, slender. *Calyx-segments* short, ovate-oblong or lanceolate, acute. *Corolla* pale rose-coloured, with a yellow palate, pubescent all over; upper lip with short obtuse reflexed lobes; lower of two rounded lobes, with a small intermediate one, which is reflexed and very variable in shape, being ovate, oblong, or orbicular. *Filaments* glabrous. *Ovary* and *style* pubescent. *Capsule* broadly ovoid. *Seeds* deeply pitted.—*J. D. H.*

Fig. 1, Flower; 2, calyx; 3, corolla laid open, showing inside of upper lip and stamens; 4, stamens; 5, ovary and style:—*all enlarged.*

1.

2

J. Nugent Fitch, Lith.

Vincent Brooks Day & Son Imp

CENTAUREA Fenzlii.

Native of Armenia.

Nat. Ord. Compositæ.—Tribe Cynaroideæ.

Genus Centaurea, *Linn.* (*Benth. et Hook. f. Gen. Plant.* vol. ii. p. 477).

Centaurea (Acrocentron), *Fenzlii;* erecta, robusta, grisea, subarachnoidea, caule robusto sulcato folioso, foliis amplis asperulis inferioribus petiolatis ovato- v. oblongo-cordatis apice rotundatis, superioribus sessilibus v. breviter decurrentibus, omnibus integerrimis v. obsolete sinuatis, costa valida, nervis numerosis horizontaliter divaricatis, nervulis reticulatis, pedunculis elongatis validis simplicibus v. bifurcatis, ramis nudis sulcatis monocephalis, capitulis sequipollicaribus, involucri depresso-globosi bracteis lamina brevi quadrata in appendices adpressos multo latiores semi-orbiculatos inermes creberrime ciliatos desinentes, floribus flavis, acheniis brevibus nudis, pappi purpurei setis longioribus achenio duplo longioribus.

C. Fenzlii, *Reichardt, Verh. Zool. Bot. Ges. Vindob.*, 1863, *ex. Boiss. Fl. Orient.*, vol. iii., 672. *Carriere in Rev. Hortic.*, 1868, p. 366. Fig. 39.

This is certainly the noblest Centaury hitherto introduced into cultivation, and is indeed a very stately plant; with bold spreading foliage, a strict erect stem, and numerous very long erect or ascending one- to two-headed axillary peduncles, that together form a sort of nude umbel of globose heads capped with an almost golden ray of florets. Though a very little known plant, it has, according to Boissier's 'Flora Orientalis,' been in cultivation for a good many years. For it is known only from plants raised from seed sent to Vienna by the late indefatigable Oriental botanical traveller, Kotschy, who discovered it in Southern Armenia, at the foot of the Bindoeldagh, near Gumgum, a town north-east of Lake Van, and which in our maps is placed in Kurdistan, towards the southern border of Armenia. It belongs to a section of the genus containing several species of gigantic stature, and one of which, *C. Kurdica*, attains seven feet in height. Carriere, who described it very imperfectly in 1868 from garden specimens, says it was then new and probably from Asia, giving it the name of *C. Fenzlii* without

any further authority, or any indication of its origin, whence we are led to suppose that it was cultivated in the Jardin des Plantes of Paris, under the name originally given to it by Reichardt. Our specimens were grown by Mr. Ware, of Hale Farm Nurseries, Tottenham, with whom it flowered in August of this year.

Descr. A tall stout erect biennial, of a grey green colour, thinly clothed with cobwebby pubescence. *Stems* strict, stout, erect, deeply grooved, unbranched, leafy, as thick as the thumb at the base. *Leaves* spreading horizontally, very large, some a foot and a half long, on long or short petioles, broadly oblong or ovate, cordate with a rounded tip; upper gradually smaller, sessile, or shortly semi-amplexicaul and decurrent on the stem, all minutely rough on both surfaces, quite entire or obscurely sinuate, with a stout midrib, and many horizontally spreading reticulating nerves. *Peduncles* very numerous, axillary, solitary, erect, or suberect, two feet long, stout, grooved, simple or once forked, with a small obtuse leaf at its fork. *Heads* large. *Involucre* one and a half inches in diameter, depressed-spherical, much contracted at the mouth, hard, pale brown; bracts with a short quadrate limb, and much broader simi-orbicular strongly ciliate hard convex faintly nerved appendage, which has no trace of a spine. *Flowers* in a spreading mass, scarcely equalling the diameter of the involucre; bright yellow. *Corolla* with a long slender tube, and a tubular oblique limb; lobes very narrow. *Achenes* very short, smooth; pappus hairs rigid, purplish, about twice as long as the achene.—*J. D. H.*

Fig. 1. Bract of the involucre; 2, flower; 3, stamens:—*all enlarged.*

3

Tab. 6393.

EURYGANIA ovata.

Native of Peru.

Nat. Ord. Ericeæ.—Tribe Thibaudieæ.

Genus Eurygania, *Klotzsch*; (*Benth. et Hook. f. Gen. Pl.*, vol. ii. p. 568).

Eurygania *ovata*; frutex glaberrimus, ramis elongatis cylindraceis crassiusculis subscandentibus, apicibus pendulis, foliis sparsis breviter petiolatis ovatis v. ovato-cordatis acuminatis obscure serratis crasse coriaceis supra saturate subtus pallide viridibus, petiolo rubro, floribus longe pedicellatis in pedunculum brevem pilosulum axillarem subcorymbosis, bracteis ciliolatis minutis, pedunculis floribusque rubris, calycis tubo campanulato, lobis late triangulari-ovatis obtusis, corolla urceolata lævi fauce constricto pallido lobis minutis recurvis, staminibus corolla multo brevioribus, filamentis in tubum brevem connatis, antheris linearibus dorso muticis, loculis apice liberis rimis elongatis dehiscentibus basi barbellatis.

A very beautiful plant, belonging to a genus now for the first time figured from cultivated specimens; nearly allied to *Thibaudia*, under which it would have ranked before that unwieldy genus was revised and broken up by Klotzsch. As now constituted, *Eurygania* comprises those *Thibaudiæ* of the older authors, in which the stamens are much shorter than the corolla, with the filaments coherent into a tube, and the anther-cells, which are not spurred at the back, opening by long slits towards the tip. Hitherto about twelve species of the genus have been described or seen in Herbaria, with none of which have I been able to identify the plant here figured. It was discovered by Mr. W. Lobb in the Andes of Peru, when collecting for Messrs. Veitch, who sent flowering specimens for figuring in July of the present year. It forms a rambling shrub, with sarmentose branches ten to twelve feet long, and leaves and branches of a brilliant glossy green, relieved by the red petioles.

Descr. An evergreen shrub, with stout stem and long rather stout rambling branches, which are cylindric, green, and pendulous at the end. *Leaves* scattered, one and a half to two inches long, recurved on the pendulous branches; ovate or ovate-cordate, acuminate, obscurely serrate, deep

glossy green above, with whitish margins, paler beneath; petiole short, stout, red. *Flowers* in very spreading, shortly peduncled axillary corymbs four to five inches across; peduncle green, slender, pilose; pedicels slender, one inch long, red, with minute ciliate bracts at the base, slightly thickened upwards, not articulate with the calyx till the flowers are dried. *Calyx* campanulate, dark red; lobes very broad, obtuse. *Corolla* one half inch long, terete, quite smooth, bright red, pale or white at the throat and the short reflexed limb. *Stamens* one third shorter than the corolla; filaments united into a glabrous tube half the length of the anthers, which are straight; the cells parallel, slightly diverging above, not spurred at the back, opening for one third way down by slits; bases shortly produced and bearded.—*J. D. H.*

Fig. 1, Flower, cut vertically; 2, back view of anthers and tip of filaments; 3, stamens:—*all enlarged.*

4. 3.

H.T.D.del. J.N.Fitch Lith.

1.

Vincent Brooks, Day & Son, Lith.

Tab. 6394.

CAMPANULA MACROSTYLA.

Native of the Taurus Mountains.

Nat Ord. Campanulaceæ.—Tribe Campanuleæ.

Genus Campanula, *Linn.* (*Benth. et Hook. f. Gen. Plant.* vol. ii. p. 561).

Campanula (medium) *macrostyla;* setis rigidis patentibus strigosa, caule elato robusto folioso superne dichotome ramoso paucifloro, foliis sessilibus inferioribus ovatis v. ovato-lanceolatis acuminatis hispido-ciliatis superioribus ovato-lanceolatis reflexis, floribus amplis, calycis tubo parvo hemispherico, lobis magnis ovato-lanceolatis acuminatis setoso- ciliatis, fructiferis valde dilatatis, appendicibus late ovatis v. rotundatis deorsum productis tubum velantibus cucullatis, corolla turbinato-campanulata intus pilosa violaceo-reticulata ore ampliato, lobis brevibus triangularibus acutis, stylo elongato, stigmate maximo fusiformi acuto cruribus 3 demum solutis patentibus.

C. macrostyla, *Boiss. & Heldr. Diagn.* ser. i. pars. 2, p. 65; *Boiss. Fl. Orient.* vol. ii. p. 928. *Godefroy Lebœuf. Rev. Hortic*, 1877, p. 307; figs. 51, 52.

The most singular species of *Campanula* hitherto introduced into English gardens. The rigid habit, bristly, almost prickly, stem and leaves (like *Helminthia echioides*), curious calycine appendages, short gaping corolla, and wonderful stigma, are all marked characters, which appear developed in greater excess in this species than in any other.

It is a native of two places in the Taurus mountains in Southern Asia Minor; having, according to Bossier, been found in gravelly soil on the shores of Lake Egirdir in Pisidia (Anatolia), and in stony places at Ermenek in Isauria (Itchlli of modern maps). The specimen here drawn flowered at Kew in July of the present year.

Descr. An annual, one to two feet high, branched from the base, hispid with rigid spreading scattered bristles; branches stout. *Leaves* scattered, small for the size of the plant, sessile, hispid on both surfaces and ciliated with bristles;

lower ovate-oblong, acute; upper ovate-lanceolate, recurved, cordate and auricled at the base. *Flowers* solitary on stout peduncles, two to two and half inches in diameter. Calyx-tube small, broader than long, concealed by the deflexed bladdery appendages of the lobes, which are ovate-lanceolate, hispid, and much enlarged in fruit. *Corolla* broadly campanulate and very open; pale dirty purple externally, within dull purple reticulated with violet, and hairy towards the base; lobes very broad, short, and acute. *Stamens* with almost orbicular ciliate filaments, and long linear anthers. *Style* straight, smooth, long-exserted, surmounted by a large fusiform acute stigma an inch long and more, which separates into three linear-oblong segments.—*J. D. H.*

Fig. 1, Vertical section of Flower; 2, reticulated venation of the corolla; 3 and 4. back and front view of Stamens:—*all enlarged.*

J. Nugent Fitch Lith.

Vincent Brooks Day & Son Imp

TAB. 6395.

ALBUCA JUNCIFOLIA.

Native of the Cape Colony.

Nat. Ord. LILIACEÆ.—Tribe SCILLEÆ.

Genus ALBUCA, *Linn.* (*Baker in Journ. Linn. Soc.* vol. xiii. p. 285).

ALBUCA *juncifolia*: bulbo ovoideo collo haud setoso, foliis 20–30 viridibus subteretibus pedalibus dorso rotundatis facie deorsum canaliculatis primum obscure puberulis cito calvatis, floribus 10–15 in racemum deltoideum dispositis, bracteis parvis lanceolatis scariosis, pedicellis apice cernuis inferioribus erecto-patentibus flore subduplo longioribus, floribus luteo-viridibus inodoris, staminibus exterioribus castratis, stylo prismatico-triquetro ovario æquilongo.

A. juncifolia, *Baker in Gard. Chron.* 1876, vol. i. p. 534.

This is a well-marked new species of *Albuca*, discovered by Mr. Hutton in the south-eastern portion of Cape Colony, and sent by him to the Kew collection, where it flowered for the first time in the summer of 1876. Of the old species it comes nearest *A. viridiflora*, Jacq. (Bot. Mag. Tab. 1656), a plant always very rare and now apparently entirely lost to cultivation. From this and every other species it may be recognised at a glance by its numerous bright green rush-like leaves, which are obscurely downy only in a very early stage and soon become glabrous. Since the publication of my monograph of the genus in 1873, no less than eleven new species have been added to the sixteen previously known, a striking evidence of the activity with which of late years this department of botany has been worked. The plate was drawn from a plant that flowered at Kew in August of this present year.

DESCR. *Bulb* ovoid, about an inch in diameter; the outer tunics not at all produced beyond its neck in the form of bristles. *Leaves* twenty or thirty to a bulb, cotemporary with the flowers; subterete, reaching a length of a foot and a diameter of an eighth or a sixth of an inch, obscurely downy

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only in an early stage, soon becoming glabrous, and bright green, rounded on the back, tapering to a point, channelled down the lower half of the face. *Scape* terete, glaucous, eight to twelve inches long. *Flowers* inodorous, cernuous, greenish-yellow, ten to fifteen forming a deltoid panicle four or five inches long and broad; bracts small, lanceolate, scariose; lower pedicels erecto-patent, one and a half or two inches long. *Perianth* an inch long, the outer segments oblong, rather spreading; the three inner permanently connivent, with conspicuously deflexed papillose tip. Three outer *stamens* with flattened filaments and no anthers; three inner shorter, anther-bearing, with filiform filaments dilated at the base. *Ovary* oblong, with the ovules very numerous and tightly packed in the cells. *Style* prismatic, about as long as the ovary.—*J. G. Baker.*

Fig. 1, Portion of a leaf; 2, flower cut down the middle; 3, anther-less stamen of the outer whorl of three; 4, anther-bearing stamen of the inner whorl of three —*all enlarged.*

H.T.D.del. J.N.Fitch. Lith.

Vincent Brooks, Day & Son, Lith.

Tab. 6396.

ERYTHRÆA VENUSTA.

Native of California.

Nat. Ord. Gentianeæ.—Tribe Chironieæ.

Genus Erythræa, *Linn.* (*Benth. et Hook, f. Gen. Plant.* vol. ii. p. 809).

Erythræa *venusta*; gracilis, glaberrima, caule spathamæo simplici v. parce dichotome ramoso paucifloro, foliis oblongis ovato-oblongisve basi et apice rotundatis v. basi subcordatis, pedunculis calyci æquilongis v. brevioribus, calycis profunde fissi segmentis lineari-subulatis angustissimis, corolla poll. diametr. roseæ, tubo calycem superante, lobis elliptico-oblongis basi flavis tubo paullo brevioribus, filamentis gracilibus antheris longioribus, stigmatis lobis ellipsoideis.

E. venusta, *Gray, MSS.; Watson, Bot. of California*, vol. i. p. 479.

E. chironioides, *Torr. in Mex. Bound. Rep.* 156, t. 42 *Excl. Syn.*

E. tricantha, *Durrand in Pacif. R. R. Rep.* vol. v. p. 11, t. 9, *non Griseb.*

This is the largest flowered of the North American Erythræas, which are numerous, especially in the Western States, from Mexico to Oregon, and in the Rocky Mountains, forming small annual herbs with pretty star-like usually pink or rosy flowers. Watson states that *E. venusta* is common in California, through all the Southern part of the State, and along the Sierra Nevada to Sierra county, ascending to 4000 feet elevation. The position of the stigma in the expanded flower is very curious, the exserted portion of the slender style, which much exceeds the stamens in length, being turned down at right angles, so as to assume a horizontal position, and to be removed entirely away from the anthers.

The specimen here figured flowered at Kew in August last, and was raised from seeds collected by Dr. Gray and myself in California in 1877.

Descr. A slender erect glabrous annual, six to ten inches high. *Stem* 4-angled, simple or cymosely branched above, few-flowered. *Leaves* in scattered pairs, sessile, half to one

inch long, oblong or ovate-oblong, rounded at the apex, base rounded or cordate, upper and floral leaves narrower and acute or acuminate. *Peduncles* as long as the calyx or shorter. *Calyx* one half inch long, divided nearly to the base into very slender erect segments which are about one-third shorter than the corolla-tube. *Corolla* one inch in diameter, tube slender; lobes of the limb elliptic, obtuse, deep rose-coloured, with yellow at the base; about as long as the tube. *Stamens* exserted; filament very slender, longer than the anthers. *Style* very slender, upper half exserted and bent to one side; stigmatic lobes ellipsoid.—*J. D. H.*

Fig. 1, Vertical section of flower: 2, stamen; 3, top of style and stigmatic lobes :—*all enlarged.*

J. Nugent Fitch Lith.

Vincent Brooks Day & Son Imp

Tab. 6397.

ISMENE tenuifolia.

Native of Ecuador.

Nat. Ord. Amaryllidaceæ.—Tribe Pancratieæ.

Genus Ismene, *Salisb.*; (*Kunth, Enum.* vol. v. p. 681).

Ismene *tenuifolia*; bulbo globoso tunicis brunneis membranaceis, foliis circiter 6 synanthiis linearibus acutis patulis pedalibus, scapo semipedali unifloro, bracteis 2 subulatis caducis, ovario sessili oblongo-trigono, perianthii albi erecti 7–8-pollicaris tubo viridulo, segmentis linearibus flore expanso falcatis tubo æquilongis, coronæ infundibularis tubo fundo luteo striis 6 viridibus percurso, margine inter filamentos producto patulo emarginato extus argute dentato, filamentorum parte libera inflexa semipollicari, antheris parvis linearibus luteis, stylo præter coronam exserto sursum leviter declinato.

This is one of the finest additions that have been made for a long time to our stock of cultivated Amaryllidaceæ. The plant has been known for nearly a century, for there is a specimen from Pavon at the British Museum, and it is very singular that so striking a species should never have been named or described. We have fine specimens in the Kew herbarium, gathered by Jamieson and Spruce, in both cases in the neighbourhood of Guyaquil. It grows at a low level, and is only adapted for stove cultivation. In its native country the time of flowering seems to extend from December to March. It has been imported by Messrs. E. G. Henderson and Son, and the drawing was made from a specimen that flowered with them last June.

Descr. *Bulb* globose, one and a half or two inches in diameter, with brown membranous tunics. *Leaves* about half-a-dozen to a bulb, cotemporary with the flowers, spreading, linear, bright green, about a foot long. *Scape* six or eight inches long, one-flowered, ancipitous. *Bracts* two, subulate, membranous, deciduous. *Ovary* sessile, oblong-trigonous, green, half an inch long. *Perianth* white, erect,

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slightly scented, seven or eight inches long; tube cylindrical, greenish; segments linear, as long as the tube, spreading from the top of the corona in the expanded flower. *Corona* a broad white funnel, with a tube about two inches deep, tinted with yellow inside downwards, and marked with six green longitudinal stripes bordered with yellow, the margin furnished with a spreading quadrate process between each of the filaments, which is bifid and sharply toothed along the outer border; free portion of the filaments inflexed, subulate, half an inch long; anthers small, linear, bright yellow. *Style* protruded beyond the corona, the exserted part green and slightly declinate; stigma capitate.—*J. G. Baker.*

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H.T.D. del. J.Nugent Fitch Lith

Vincent Brooks Day & Son Imp

Tab. 6398.

PAVONIA MULTIFLORA.

Native of South Brazil.

Nat. Ord. Malvaceæ.—Tribe Ureneæ.

Genus Pavonia, *Cav.* (*Benth. et Hook. f. Gen. Plant.* vol. i. p. 205).

Pavonia *multiflora*; stellato-pubescens, caule subsimplici, foliis deflexis gracile petiolatis anguste obovato-v. oblongo-lanceolatis acuminatis basi acutis v. cordatis serratis, stipulis lineari-subulatis deciduis, floribus foliis supremis axillaribus solitariis et ad apicem caulis subcorymbosis cum pedicellis elongatis stipulaceo-bracteatis, bracteolis floralibus perplurimis erectis verticillatis corollam æquantibus anguste linearibus acuminatis pilosis rubris, sepalis bracteolis brevioribus lineari-lanceolatis purpureis, petalis arcte convolutis obovato-oblongis purpureis, tubo stamineo elongato longe exserto decurvo per totam fere longitudinem antherifero, styli ramis gracilibus pilosis, stigmatibus capitellatis.

P. multiflora, *St. Hil. Fl. Bras. Merid.* vol. i. p. 239, t. 47; *Walp. Rep.* vol. i. p. 301.

P. Wioti, *Morren, Belgiq. Hortic.* vol. xxv. p. 113, *cum Ic.*

A native of primeval forests in the province of Espirito-Santo, in Brazil (on the Atlantic coast, north of Rio), where it was discovered by St. Hilaire; and lately introduced into cultivation by Makoy, of Liege, through one of his collectors. Morren, who describes it under the name of *P. Wioti*, endeavours to distinguish it from St. Hilaire's plant by the more strongly serrate leaves, geminate flowers, colour of the corolla, ciliolate bracteoles, inclined staminal column, and robust habit. But the first character is variable; the flowers are not geminate in Morren's figure, and the other characters are trifling, and no doubt due in great part to St. Hilaire's plant being figured and described from an herbarium specimen. There is a fine specimen of it in the Herbarium of Kew from Sellow, which accords well with the cultivated plant, except in the very much longer petioles and less toothed leaves. The plant here figured flowered in a stove at Kew in September, and remained a long time in flower.

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Descr. A robust probably shrubby plant, with a usually simple stout erect strict terete stem, which and the leaves and peduncles are pubescent with stellate hairs. *Leaves* alternate, six to ten inches long, by one and a half to two inches broad, narrowly oblong- or obovate-lanceolate, long-acuminate, serrulate or denticulate, base acute rounded or subcordate nerves arched at the base, and then very oblique, basal pair strong, opposite, and very oblique; petiole one and a half to three inches long, usually horizontal whilst the blade hangs down; stipules linear-subulate. *Flowers* solitary in the upper axils, and forming a short terminal corymb, in which case they are bracteate by leafless stipules at the base of the pedicel, which is one to two inches long, strict, green, slender. *Bracteoles* numerous below the flower, whorled, narrow linear, acuminate, red, hairy, curving outwards from the base of the calyx, then erect, and equalling the corolla. *Calyx-segments* much shorter and rather broader than the bracteoles, linear-lanceolate, purplish, erect and appressed to the corolla. *Petuls* one to one and a half inches long, rolled together, narrowly obovate-oblong, dull purple. *Staminal* column two and a half inches long, slender, long-exserted, slightly decurved, antheriferous almost throughout its length; free portions of the filaments hairy; anthers bright violet-blue. *Style* with ten slender hairy arms and capitate stigmas.—*J. D. H.*

Fig. 1, Longitudinal section of flower; 2, transverse section of ovary; 3, portion of staminal tubes:—*all enlarged.*

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Tab. 6399.

APONOGETON SPATHACEUM, *var.* JUNCEUM.

Native of South Africa.

Nat. Ord. Aponogetoneæ.

Genus Aponogeton, *Thunb.* (*Planch. in Ann. Sc. Nat. Ser.* 3, vol. i. p. 107).

Aponogeton *spathaceum;* andro-dioicum, spadicibus aliis fœmineis aliis hermaphroditis, foliis angustissimis v. elongato-subulatis obtuse trigonis v. in laminam tenuem elongato-lineari-lanceolatam dilatatis, spadicibus 2-furcatis, ramis brevibus densifloris, bracteolis floralibus 2 obovato-oblongis obtusis sub-3-nerviis pallide lilacinis, staminibus 6–8, carpellis 3–8.

A. spathaceum, *E. Meyer in Herb. Drège; Linnæa*, vol. xx. p. 215.

Var. *junceum*, foliis (lamina dilatata nulla) elongato-subulatis obtuse 3-gonis v. ½-teretibus angulis rotundatis; A. spathaceum, *var.*, *E. Meyer in Herb. Drège;* A. junceum, *Herb. Zeyher;* ? A. junceum, *Lehm.* (*in Steud. Nomenclator.*)

This curious little water plant, though long known in Herbaria under the unpublished names cited above, has never, as far as I can ascertain, been described. There are two forms (possibly species), one with a very narrow bladeless leaf, as figured, the other with a narrow flat leaf-blade; between them I find no other difference. Dr. Reichenbach has presented to Kew, from the Herbarium of Zeyher, a specimen named *A. junceum*, Eckl. and Zeyher, whence it is probably the *A. junceum*, Lehm, quoted in Steudel's Nomenclator, but which I can nowhere find published.

The genus *Aponogeton* has been made by Planchon the type of a Natural Order, including itself and *Ouvirandra*, the lattice leaf (Tabs. 4894 and 5076); which latter genus should be suppressed, having no other distinguishing character than the well-known and beautiful one of the absence of tissue between the nervules of the leaf. Whether the order *Aponogetoneæ* may not eventually merge into *Naiadeæ* or *Potameæ*, must depend on a more comprehensive examination of the whole group of exalbuminous allied water-plants than they have yet received under a systematic point of view. There are a

good many species of the genus, all natives of the Old World; and about six are South African. These latter include the deliciously sweet-scented *A. distachyon* (Tab. 1293), which is not nearly so much cultivated as it should be, being equally available for a glass bowl on the drawing-room table, or a tank in the garden. *A. angustifolium* (Tab. 1268) is another Cape species, which has, however, long disappeared from cultivation. *A. spathaceum* is found in shallow lakes in Somerset East, in the Transvaal, British Kaffraria, and Natal; the var. *junceum* is scribed by the Rev. R. Baur, who sends specimens from the Upper Transkei territory, as growing in wet places amongst grass. The specimens here figured flowered in the open air in a tank at Kew in autumn of the present year; its tubers were communicated by Commandant Bowker, F.G.S., from Basuta Land.

Descr. *Tuber* hemispheric, with the rounded end downwards, about the size of a hazel nut. *Leaves* erect, flexuous, six to ten inches long, elongate-subulate, subacute, obtusely 3-gonous or half terete with rounded angles. *Scapes* usually shorter than the leaves, cylindric, caducous. *Spadix* forked, the arms each one to two inches long. *Flowers* crowded on the spadix, those of some plants all female, of others hermaphrodite, rarely all male from their ovaries being, though present, imperfect. *Floral bracts* two, imbricating, ovate or oblong, obtuse, obscurely 3-nerved. *Stamens* usually six to eight. *Carpels* from three to eight; ovules about four in each carpel. *Fruit* trigonous, tumid.—*J. D. H.*

Fig. 1, Transverse section of leaf; 2, hermaphrodite flower; 3, female flower; 4, carpel cut open; 5, ripe carpel; 6, embryo:—*all enlarged.*

H.F.D. del. J.Nugent Fitch Lith

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TAB. 6400.

WATSONIA DENSIFLORA.

Native of Natal and Cape Colony.

Nat. Ord. IRIDACEÆ.—Tribe GLADIOLEÆ.

Genus WATSONIA, *Miller*; (*Baker in Journ. Linn. Soc.* vol. xvi. p. 157).

WATSONIA *densiflora*: bulbo globoso tunicis fibrosis collo setoso, foliis linearibus rigidis erectis crebre valide nervatis margine stramineo incrassato, caule 1½–2-pedali foliis pluribus reductis adpressis prædito, floribus pluribus in spicam disticham pedalem vel semipedalem dispositis, bracteis chartaceis brunneis striatis arcte imbricatis, exterioribus ovatis vel ovato-lanceolatis, interioribus lanceolatis, perianthii rosei 2–3-pollicaris tubo curvato deorsum cylindrico sursum infundibulari, segmentis oblongis acutis tubo duplo brevioribus, genitalibus perianthio brevioribus.

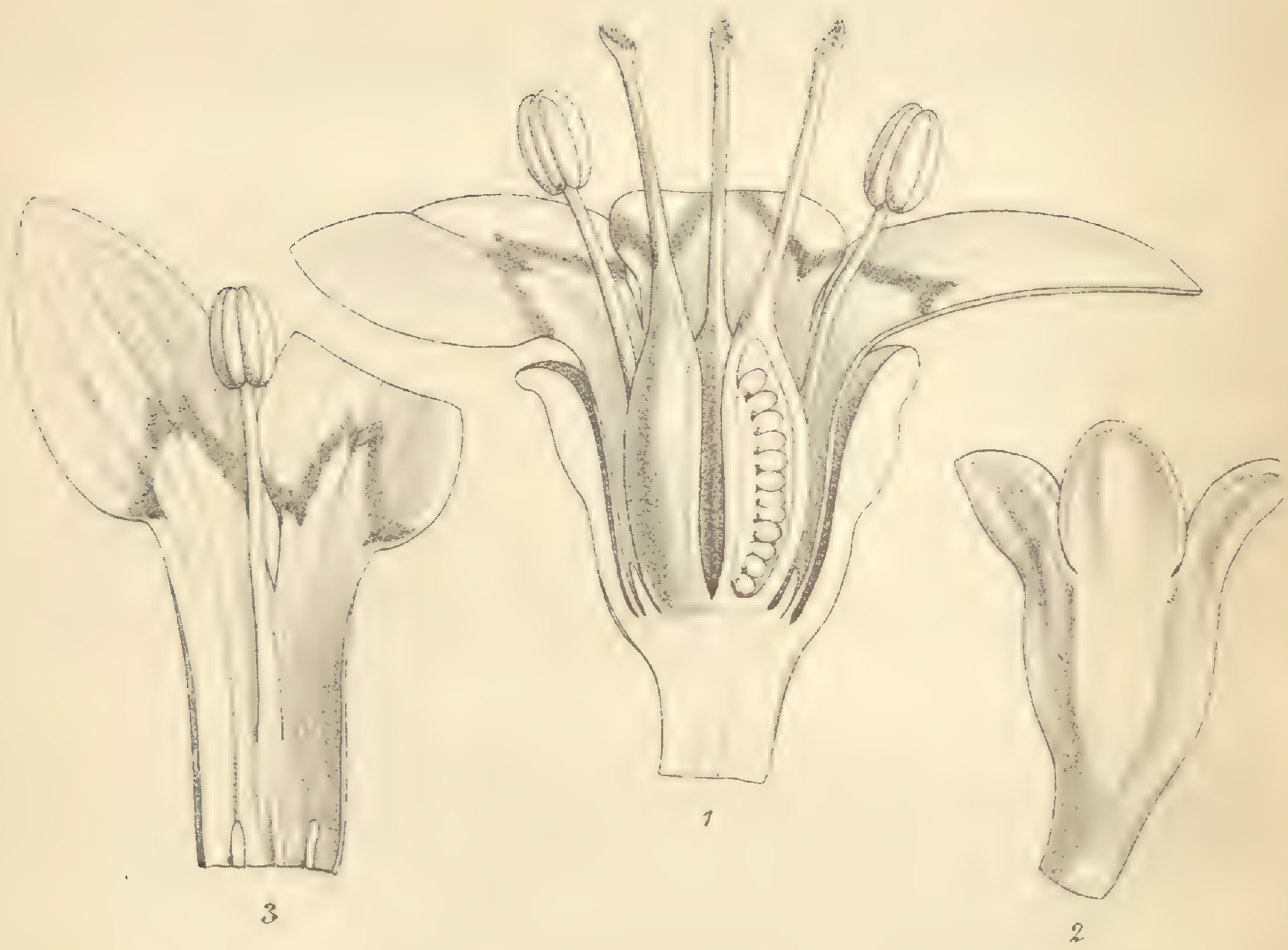
W. densiflora, *Baker in Trimen Journ.* 1876, p. 336; *in Journ. Linn. Soc.* vol. xvi. p. 158.

This is a well-marked new species of *Watsonia*, closely resembling the old *W. Meriana* in its single individual flowers, but with very numerous flowers packed in a distichous spike so closely that the bracts are much imbricated. This dense-flowered habit separates it at a glance from all the other true *Watsonias*, and gives it a distinct individuality of its own from a horticultural point of view. It was discovered long ago by Drège in Kaffraria, in dales between Omlatu and Onsambuco, at an elevation of between 1000 and 2000 feet above sea-level. It has since been gathered in Natal, where it ascends mountains up to 4000 feet, by Miss Armstrong and Messrs. Plant and Cooper, and also by the latter in the Orange Free State. It was found by Mr. Christopher Mudd, on his recent tour through Natal, and sent alive to Messrs. Veitch, with whom it flowered in the month of August of this present year.

DESCR. *Bulb* globose, with coarsely fibrous tunics and a bristly neck. *Leaves* erect, linear, rigidly coriaceous, reaching a length of one and a half or two feet, and a breadth of half an inch, narrowed to the point, with many close strongly-

marked ribs and a much thickened straw-coloured border. *Stem* one and a half or two feet long, concealed by the many reduced adpressed leaves. *Flower-spike* dense, distichous, centripetal, reaching sometimes a foot in length, the flowers packed so tightly that the spathes of adjoining flowers wrap over each other; spathe-valves chartaceous in texture, brown, closely striated, the outer one ovate or ovate-lanceolate, about an inch long, the inner one rather shorter, lanceolate-navicular. *Perianth* rose-red, not scented; ovary sessile; tube curved, about an inch and a half long, cylindrical in the lower half, funnel-shaped in the upper half, half an inch in diameter at the throat; segments oblong, acute, half as long as the tube, spreading when the flower is fully expanded. *Stamens* exserted from the tube, falling short of the top of the perianth-segments; anthers linear, whitish. *Style-arms* deeply bifid, with reflexed forks.—*J. G. Baker.*

Fig. 1, Bracts of the spathe, *natural size;* 2, a flower complete; fig. 3, top of the style:—*both magnified.*



H T D del. J Nugent Fitch Lith

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Tab. 6401.

GRAMMANTHES chloræflora, *var.* cæsia.

Native of South Africa.

Nat. Ord. Crassulaceæ.

Genus Grammanthes, *DC.*; (*Benth. et Hook. f. Gen. Plant.* i. p. 658).

Grammanthes *chloræflora*; glaberrima, glauca, diffuse dichotome ramosa, foliis sessilibus ovatis acutis concavis carnosulis, floribus axillaribus et terminalibus pedicellatis, calyce campanulato, tubo angulato, lobis brevibus ovato-rotundatis obtusis, corollæ tubo limbo æquilongo, lobis ovatis, squamulis minimis linearibus, filamentis brevibus, antheris exsertis.

G. chloræflora; *DC. Prodr.* vol. iii. p. 392; *Harv. et. Sond. Fl. Cap.* vol. ii. p. 331; *Bot. Mag.* t 4607; *Moore in Garden. Mag.* vol. ii. p. 9, *cum Ic.*

G. cæsia, et. G. flava, *E. Meyer Pl. Drège.*

G. gentianoides, *DC. Prodr.* l. c. 393; *Planchon in Fl. des Serres*, ser. i. v. t. 518; *Morren Belgiq. Hortic.* i. p. 447, *cum Ic.*

G. Sebæoides et G. depressa, *Eckl. et. Zeyh. Pl. Afric. Austr.*

Crassula gentianoides, *Lam. Dict.* vol. ii. p. 175.

C. retroflexa, *Thunb. Fl. Cap.* p. 282; *Ait. Hort. Kew.* ed. 2, vol. ii. p. 194.

C. dichotoma, *Linn. Amæn. Acad.* vol. vi. p. 86; *Ait. Hort. Kew.* ed. i. vol. i. p. 392.

Vauanthes chloræflora, *Haw. Revis. Succul.* p. 19.

Judging from the number of names which have been given to this little plant by collectors in its native country, it ought to be very variable; though I doubt whether it is more so than other annual *Crassulaceæ*. It has already (in 1851) been figured and described in the Magazine (as quoted above), but this figure has been overlooked by every succeeding author, and the form there depicted differs from this in nothing but its less glaucous leaves, larger flower, and (erroneously) in the omission of the hypogynous scales, which, usually though so conspicuous in the order, are so minute (according to Harvey even obsolete) in this genus, as to be hardly distinguishable in the dried specimens, whence Haworth in his description of the genus (Vauanthes) and De Candolle (in that of Grammanthes) describe them as absent. Harvey, in the 'Flora Capensis' describes five varieties, distinguished by the form

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of the leaves, of the calyx-lobes, and of the petals, all of which vary much in length and breadth ; that here figured agrees best with his var. *vera*, which is E. Meyer's *G. cæsia*. Lamarck indeed (following Plukenet) describes a species (*G. gentianoides*) as blue flowered ; but this, as already pointed out in this work, is no doubt an error. *Grammanthes chloræflora* was introduced into England in 1788 by Masson (a collector sent from Kew), but was known long before to botanists, being described by Plukenet in his 'Almagesti Botanici,' in 1700, as identified by Lamarck, though the rude figure (t. 415 f. 6,) is hardly recognizable as belonging to this plant, and the flower is described as blue. The specimen here figured flowered at Kew in July of the present year.

Descr. A low glaucous annual herb, four to five inches high, usually dichotomously branched. *Leaves* sessile, ovate, acute, one-fourth to one-half an inch long, succulent, concave. *Flowers* axillary and terminal, peduncled, one-third to two-thirds of an inch in diameter, at first orange-yellow with a deep v-shaped mark at the base of each corolla lobe, finally more red. *Calyx* campanulate; tube obscurely angled; lobes usually broadly ovate, obtuse, but sometimes produced and lanceolate. *Corolla*-tube equalling the calyx or longer; lobes ovate or lanceolate, acute. *Stamens* with the filaments much shorter than the corolla-lobes, anthers exserted. *Hypogynous glands* minute, linear. *Carpels* 5, with slender straight subulate styles.—*J. D. H.*

Fig. 1, Vertical section of flower; 2, calyx; 3, portions of corolla and stamen: —*all enlarged.*

H.T.D, del. J.N, Fitch Lith.

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TAB. 6402.

ARGEMONE HISPIDA.

Native of Colorado and California.

Nat. Ord. PAPAVERACEÆ.—Tribe EUPAPAVERACEÆ.

Genus ARGEMONE *Linn.*; (*Benth. et Hook. f. Gen. Pl.*, vol. i. p. 52).

ARGEMONE *hispida*; erecta, hispido-setosa, glabra v. pubescens, glauca, radice perenni, caule robusto, foliis pinnatifidis caulinis semiamplexicaulibus, inferioribus petiolatis, floribus amplis albis, capsula oblonga 1½-pollicari aculeata.

A. hispida, *A. Gray, Plant. Fendl.* p. 5; *Walp. Ann.* vol. ii. p. 25; *Watson. Bot. Calif.* vol. i. p. 21.

A. munita, *Dur. and Hilg. in Journ. Acad. Philad.* vol. ii. *part.* 3, p. 37; *Walp. Ann.* vol. iv. p. 170, and vol. vii. p. 85.

A. mexicana, *Engelm. in Wisliz. Rep.* p. 3; *Porter et Coulter, Flor. Colorado*, p. 6.

A. mexicana, *var.* hispida, *Torrey, Mexic. Bound. Survey.* p. 31.

This fine plant is, during its flowering season, the greatest ornament of the vegetation of Colorado, where it occurs in open grassy and stony places in great profusion, flowering for three months of the year. It also extends into New Mexico to the south, and westward into Utah, Nevada, and Central California. As a species it will, I fear, prove difficult to distinguish from the widely-diffused golden-flowered *A. mexicana*, that is, if the *A. albiflora* be really referable to a form of that plant, for all the Argemone species or forms are excessively sportive in habit, in hispidity, in the form of the leaves, size of the flowers, and size and hispidity of the capsule. The specimen of *A. hispida*, from which our drawing was taken, was nearly glabrous, but New Mexican ones preserved in the Herbarium (Fendler, No. 16) are very pubescent; it is, indeed, described as having a perennial root, but that of *A. mexicana*, I believe, is at times more than annual, and its var. *albiflora* has been described as perennial.

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Argemone hispida flowered at Kew in autumn of the present year, from plants raised from seed brought by myself from Colorado in 1877. The synonyms for the species are taken from Watson's invaluable Bibliographical Index of North American Botany, where numerous references to American works in which this species is described will be found. The reference of *A. mexicana* of Porter's Colorado flora to this species will, however, not be found in that work.

Descr. A stout, erect, branched biennial, or perhaps perennial-rooted annual, beset with stiff prickly bristles, glabrous or pubescent with short soft curled hairs. *Leaves* linear-obovate or oblong, two to four inches long, upper sessile and semiamplexicaul, lower narrowed into a petiole, all pinnatifid or deeply sinuate with prickly margins and nerves beneath, not clouded with white (as usual in *A. mexicana*). *Flowers* three to five inches in diameter, pure white, with golden anthers; buds one to one and a half inches long. *Sepals* three, each produced below the tip at the back into an acute horn, sparsely prickly. *Petals* four to six, very variable in breadth, longitudinally crumpled. *Anthers* twisted backwards after discharging the pollen. *Stigmas* usually four, small, lunate. *Capsule* narrow-oblong, one and a half to two inches long, very prickly. *J. D. H.*

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